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# JPRS Report



# Science & Technology

## Europe
## Economic Competitiveness

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*JPRS-EST-92-013* *1 May 1992*

CONTENTS

## EAST-WEST RELATIONS



## EUROPE-ASIA RELATIONS

# SCIENCE & TECHNOLOGY POLICY

## French Laboratories Seek EC Partners

*92BR0221 Paris SCIENCES & AVENIR in French Feb 92 p 8*

[Text] Francois Kourilsky, general director of the CNRS [National Center for Scientific Research], recently revealed the policy and international cooperative operations undertaken by this agency. The opening-up of French public research toward the outside world is happening in Europe first. Due to CNRS initiatives, 1992 will see an increase in the number of Associated European Laboratories (LEA), organizations pooling personnel and equipment shared between two or more EC countries.

The first LEA involves astrophysics. Inaugurated last December, it brings together the Institute of Astrophysics of Paris, the Institute of Astronomy at Cambridge, and the Dutch Observatory in Leiden. Others will be set up during the coming months: an LEA in science and physical engineering or in molecular biology, allying French and Spanish researchers; an LEA in surface and interface magnetism with Strasbourg and the Free University of Berlin; and one more LEA project, "virus and cancer," involving two laboratories, the Pasteur Institute and the German Center for Cancer Research of Heidelberg.

## Dutch Research Spending Considered Inadequate

*92BR0237 Rijswijk POLYTECHNISCH WEEKBLAD in Dutch 6 Feb 92 p 3*

[Article: "Technological Gap Is Growing"]

[Text] Once again, the Netherlands may be losing ground to technologically advanced countries. Expressed in monetary terms, the research gap totals roughly 1 billion guilders.

This was revealed by the TWIN [Technological and Scientific Indicators] report published by the Ministries of Education and Sciences and of Economic Affairs.

Dutch expenditure for R&D is still no match for that of other countries. In the Netherlands, 2.17 percent of the GNP is spent on research. This is much less than in countries such as the United States (2.79 percent), Japan (2.98 percent), France (2.42 percent), Germany (2.81 percent), Sweden (2.76 percent), and Switzerland (2.84 percent). In the period 1984-1987, the industrial sector did succeed in catching-up somewhat, but, the report concludes, the Dutch disadvantage was by no means eliminated. Indeed, in the years after 1987 a stagnation reccurred, which is attributed to a great extent to the situation at Philips (which, by the way, also had a major share in the catching-up).

### One Billion

In the report, part of the gap is attributed to differences in economic structure.

The Netherlands has a relatively small industrial sector and it is precisely in this sector that most of the research investments occur. But even if this factor is taken into account, the Dutch industry is still trailing by approximately 1 billion guilders compared to the leading countries.

The report concludes that the Dutch breeding ground for S&T is apparently less favorable than in other countries. This is indicated by a lower research effort, by a lower number of patent applications, by the reticence on behalf of the public for these subjects, and by the lack of attention for S&T in the media.

## France: State Agency Increases Research Funding

*92BR0251 Paris ELECTRONIQUE INTERNATIONAL HEBDO 27 Feb 92 p 6*

[Article by Michel Heurteaux: "ANVAR Increases its Funding by 9 Percent for 1992"]

[Text] A 9 percent budget increase will allow the National Agency of the Implementation of Research (ANVAR) to step up its 1992 incentive projects aimed at promoting technology partnerships and the dissemination of electronics and computer sciences through its innovation-oriented projects.

ANVAR's 1991 budget had already sharply increased (up 18 percent from 1990) to reach 1.45 billion French francs (Fr), of which Fr1.28 billion could be allocated in grants out of all beneficiary sectors, the electrical and electronics industries alone received 20 percent of this assistance, i.e., Fr256 million.

ANVAR aims to support companies in their modernization efforts with electronics and computer sciences. However, above all, ANVAR's policy is to support small- and medium-sized enterprises (SME's)—all sectors taken together—in the modernization of their product lines. "Priority targets" are those enterprises which have "low to medium technological specialization," such as mechanical engineering, metal-working, household appliances, and the automotive industry. These SME's currently account for almost 60 percent of ANVAR's operations. The innovative technologies which allow innovation are quite often onboard computer programs, robots and their related sensors, artificial vision, composite materials, induction, and separation and filtration techniques. Nonetheless, projects initiated by advanced-technology sectors, such as the computer services and engineering companies or software design companies, receive higher than average subsidy levels. Last year, each project was allocated more than Fr930,000.

The 1991 results showed several lines of strength: Despite a slowdown in business activity, the majority of SME's maintained their innovative efforts. The overall

growth rate for R&D spending was 7 percent. Another encouraging factor was that companies in traditional sectors were integrating more and more new technologies into their innovative projects. In 1991, ANVAR has granted more than 60 percent of its modernization subsidies to enterprises in traditional sectors.

**Seventy-Three Percent of All Partnerships Involve Research Laboratories**

Another trend is the expanding use of partnerships. In 1991, almost 50 percent of ANVAR-supported projects involved a partnership, whether at the technical, financial, commercial, or international level. Last year, 56 percent of the partnerships were concluded in traditional sectors, which could indicate that cooperation is no longer the private game of high-technology companies. A significant number of partnerships (73 percent) involved research laboratories, such as the CNRS [National Center for Scientific Research], the CEA [Atomic Energy Commission], and universities.

Innovation is not only changing, but also internationalizing. ANVAR intends to play the card of European unification, which, in its opinion, will also be beneficial to SMEs. Thus, 1990 rapprochement between ANVAR and the French secretariat of EUREKA [European Research Coordination Agency] was aimed at increasing the participation of French enterprises in the EUREKA program. One specific subsidy scheme—support to European technological partnerships—was established, which has primarily benefited electronics and computer companies: They have collected a little over 50 percent of the programs Fr32.5 million budget.

In 1992, ANVAR will have an operational budget of Fr1.58 billion at its disposal. Its activities will increasingly be focused on SMEs. In particular, it has confirmed the formation of an organization for technology brokerage. This organization will operate as a private company and have three functions: evaluating projects submitted to it; assuming responsibility for projects entrusted to it (either under a services or a risk-sharing contract); and, thirdly, counseling on cooperation between research and industry. Its capital, which has been established at Fr5 million, will be held by three classes of shareholders: the CNRS, ANVAR, and a conglomerate of state research organizations including the INRA [National Institute for Agronomic Research], CEA, INRIA [National Institute for Research on Information Science and Automation], and the CNES [National Center for Space Studies]. Some university laboratories would also be able to participate in the capital. The projected brokerage company, which should be operational within the next few weeks, would be able to handle about 100 projects each year.

## France To Decentralize Research Structure

*92WS0338A Paris AFP SCIENCES in French 30 Jan 92 pp 1-5*

[Unattributed article: "2,600 Jobs 'Relocated' in Research Organizations"]

[Text] Paris—Of the 7,000 government jobs whose 'relocation' Prime Minister Mrs. Edith Cresson, announced on 29 January, 2,600 are in research organizations. This was announced by Mr. Hubert Curien, minister of research and technology, the following day.

Mr. Curien said he was pleased that "the intelligent proposals" submitted by his ministry were "adopted" by the Interministerial Committee on National and Regional Development (CIAT). He recalled that the decentralization of research organizations had been included in the latest research planning law, and he stated that "all announced transfers from Paris to the provinces answered the wishes expressed in the regions, through the 26 official reports on research written during the past year." These reports contained 450 projects, 200 of which were selected.

"These 2,600 jobs (9 percent of the Paris-based research personnel, researchers, engineers, technicians, and administrative personnel) will be transferred within the next three years," the minister added. "All these transfers will be on a voluntary basis and will benefit from the subsidies and incentives announced by the prime minister's office: roughly, 85,000 French francs [Fr] for a couple with two children relocated 500 km from their present working place." In addition some of the relocation subsidies will be tax-exempt.

Not only do these transfers meet a need and continue the decentralization already undertaken by research organizations, but "they were planned so as to create the poles of excellence that the provinces needed," Mr. Curien added. "A total of Fr2.5 billion will be provided to create new laboratories, with buildings that will be beautiful and ready soon," the minister also indicated. "These funds will come out of the budgets of the research organizations, regions, host towns, and out of an equalization fund financed by the sale of the real estate thus freed in the Paris area. This is not a technocratic operation ordered to reorganize national and regional development. There is a scientific motivation for it." The minister declared himself convinced that it was possible "to carry out successfully this sound operation to benefit French research, within the time allotted and without trauma," especially as the operation was decided "jointly with the Ministry of National and Higher Education."

At present, 52 percent of the public research personnel is located in the Paris area; the goal, Mr. Curien said, is to reverse the proportion. Many heads of research organizations who attended the minister's press conference did

not conceal that they had been "quite afraid" that their headquarters would be transferred to the provinces. The remarks made in this respect, with support from the ministry, were heard at the prime minister's offices as well as at the Ministry of Urban and National and Regional Development. There now remains to have the personnel of research organizations accept this decentralization of research, which may "be superb or dramatic, depending on whether it is well or poorly understood and explained," according to Mr. Francois Kourilsky, general manager of the CNRS [National Center for Scientific Research].

At the CNRS, the research organization with the largest number of personnel, transferring researchers is a known problem. When a laboratory is relocated, Mr. Kourilsky noted, "we found that, as a rule, only 30 percent of its personnel would agree to move." One especially bad memory: the relocation of the National Institute for Scientific and Technical Data Processing (INIST) to the Nancy area, which was a failure.

**Projected Research Teams Relocations Out of Ile-de-France, 1992-1994 (CNRS Administrative Departments Included)**

| Region | Town | Organization | Research Personnel Number | Total |
|---|---|---|---|---|
| Alsace | | | | 67 |
| | Strasbourg | CNRS | 21 | |
| | Illkirch | CNRS | 10 | |
| | | INSERM | 29 | |
| | Mulhouse | CNRS | 7 | |
| | Colmar | INRA | Reorganizing local teams | |
| Aquitaine | | | | 84 |
| | Bordeaux | CNRS | 55 | |
| | | INSERM | 14 | |
| | | INED | 15 | |
| | | INRA | Reorganizing local teams | |
| | Cestas-Pierroton | INRA | Reorganizing local teams | |
| Auvergne | | | | 340 |
| | Clermont-Ferrand | CEMAGREF | 300 | |
| | | INRA | 35 | |
| | | INSERM | 5 | |
| Basse-Normandie | | | | 145 |
| | Caen | CNRS | 120 | |
| | | INRA | 5 | |
| | | INSERM | 8 | |
| | Cherbourg | CEA | 12 | |
| Bourgogne | | | | 18 |
| | Dijon | INRA | 18 | |
| Bretagne | | | | 130 |
| | Rennes | INRA | Reorganizing local teams | |
| | | CNRS | 41 | |
| | | INSERM | 15 | |
| | | INRIA | 20 | |
| | Brest | CNRS | 44 | |
| | | IFREMER | Reorganizing local teams | |
| | Roscoff | CNRS | 10 | |
| Centre | | | | 144 |
| | Orleans | ORSTOM | 48 | |
| | | CNRS | 52 | |
| | | INRA | 7 | |

**Projected Research Teams Relocations Out of Ile-de-France, 1992-1994 (CNRS Administrative Departments Included) (Continued)**

| Region | Town | Organization | Research Personnel Number | Total |
|---|---|---|---|---|
| | Tours-Nouzilly | INRA | 30 | |
| | | INSERM | 7 | |
| Champagne-Ardennes | | | | |
| | Reims | INRA | Reorganizing local teams | |
| Corsica | | | | 2 |
| | Corte | INRA | 2 | |
| Franche-Comte | | | | 6 |
| | Poligny | INRA | 3 | |
| | Besancon | CNRS | 3 | |
| Haute-Normandie | | | | 12 |
| | Rouen | INSERM | 4 | |
| | | CNRS | 8 | |
| Languedoc-Roussillon | | | | 401 |
| | Montpellier | CNRS | 51 | |
| | | CIRAD | 174 | |
| | | INRA | 10 | |
| | | INSERM | 41 | |
| | | ORSTOM | 25 | |
| | Marcoule | CEA | 100 | |
| Limousin | | | | 3 |
| | Peyrat-Le-Chateau | INRA | 3 | |
| Lorraine | | | | 140 |
| | Nancy | CNRS | 112 | |
| | | INRA | 5 | |
| | | INSERM | 3 | |
| | | INRIA | 13 | |
| | Metz | INRIA | 7 | |
| Midi-Pyrenees | | | | 150 |
| | Toulouse | CNRS | 135 | |
| | | INSERM | 15 | |
| Nord-Pas-de-Calais | | | | 121 |
| | Lille-Villeneuve-d'Ascq | CNRS | 71 | |
| | | INSERM | 24 | |
| | | INRETS | 20 | |
| | | IFREMER | 6 | |
| Pays de la Loire | | | | 87 |
| | Nantes | INRA | 10 | |
| | | INSERM | 10 | |
| | Angers | INRA | 67 | |
| Picardie | | | | |
| | Mons, Laon and Compiegne | INRA | Reorganizing local teams | |
| Poitou-Charentes | | | | 50 |

**Projected Research Teams Relocations Out of Ile-de-France, 1992-1994 (CNRS Administrative Departments Included) (Continued)**

| Region | Town | Organization | Research Personnel Number | Total |
|---|---|---|---|---|
| | Poitiers | CNRS | 38 | |
| | Magneraud | INRA | 3 | |
| | Saint-Laurent de la Pree | INSERM | 3 | |
| | | INRA | 3 | |
| | L'Houmeau | CNRS | 3 | |
| Provence-Alpes-Cote d'Azur | | | | 344 |
| | Marseille | CNRS | 129 | |
| | | INSERM | 30 | |
| | | INRA | 7 | |
| | Aix-en-Provence | CNRS | 19 | |
| | Avignon | CIRAD | 46 | |
| | | INRA | Reorganizing local teams | |
| | Cadarache | CEA | 14 | |
| | Sophia-Antipolis | CNRS | 45 | |
| | | INRA | Reorganizing local teams | |
| | | INRIA | 30 | |
| | Nice | CNRS | 15 | |
| | | INSERM | 9 | |
| Rhone-Alpes | | | | 364 |
| | Lyon | CNRS | 179 | |
| | | INSERM | 34 | |
| | | CIRAD | 10 | |
| | | INRA | 7 | |
| | Lyon-Bron | INRETS | 20 | |
| | Grenoble | CNRS | 44 | |
| | | CEA | 40 | |
| | | INSERM | 10 | |
| | | INRIA | 20 | |

CEA [Atomic Energy Commission]

CEMAGREF [Center for Agricultural Mechanization Study]

CIRAD [Office of International Cooperation on Agronomic Research for Development]

CNRS [National Center for Scientific Research]

IFREMER [French Institute for Research on the Exploitation of the Ocean]

INED [National Demographic Studies Institute]

INRA [National Agronomic Research Institute]

INRETS [expansion not given]

INRIA [National Institute for Research on Data Processing and Automation]

INSERM [National Health and Medical Research Institute]

ORSTOM [Bureau of Overseas Scientific and Technical Research]

## Germany: Problems of Companies' R&D Departments Surveyed

*92WS0385A Duesseldorf WIRTSCHAFTSWOCHE in German 28 Feb 92 pp 50-52*

[Article by Christian Deutsch under the rubric "Development": "Creative Basis; Encrusted Structures are Preventing Researchers From Producing Top Performance"]

[Text] Lumbering, isolated from reality, crammed with specialists—but in the wrong fields. This is how Erich Staudt of the Institute for Applied Innovation Research (IAI) at Ruhr University Bochum describes the state of Germany's research and development departments. "We have an encrustment problem," Staudt says.

Research and development work actually done in R&D departments are just 32 percent of the activities; the rest is administration. A representative survey of suppliers conducted by Diebold Deutschland [Germany] GmbH [Limited Liability Company] management and technology consultants in Eschborn makes this statement.

IAI for the first time conducted an inquiry in which not R&D management but the "innovatively active employees" were questioned: It sent the questionnaire to the private addresses of so-called "employee inventors" who have applied for at least one patent. The results of 522 of those analyzed replies, to some extent, depart conspicuously from those that are usually heard from R&D management. "We were surprised ourselves," says Project Director Peter Muehlemeyer.

A partial analysis of the data the Bochum institute made for WIRTSCHAFTSWOCHE substantiates the isolation of many R&D departments:

- In over 60 percent of the companies, outside research results are only incompletely available to R&D staff. This tendency is especially pronounced in machine-building, where 71 percent of the employee inventors questioned complain of deficiencies.
- R&D personnel desire more market information in more than half of the companies. Machine-building has the greatest deficiencies here too (61 percent).
- Collaboration with marketing leaves something to be desired in 55 percent of large companies. R&D departments act strongly isolated from market-close divisions above all in machine-building (56 percent) and in electrical engineering (57 percent). In most R&D departments, reads the Bochum professor's conclusion, "we face a disposal problem." The "generations of the last decades" were sitting there, it says. They produced top performance "in fields that are no longer productive economically."

"The problem is fiendish," especially in times of stagnation, when R&D departments are no longer refreshed by new hirings, Staudt cautions. The higher a sector's development dynamism, the faster a company runs the danger of losing contact in innovation competition. The crisis in machine building supplies an example: Above all many very successful companies are being outdone by new developments and are "dying because the niches are too short-lived."

The Bochum scientists see the solution above all in the further professional education of engineers and scientists. Professional qualification will prove to be "a key problem area of the 90s," they say.

It is also necessary to purge R&D departments, to streamline them and reorganize them—without, in the process, spoiling the climate in which ideas form. The presently well discussed slimdowns that many firms have prescribed for themselves under the catch phrase "lean production" indeed include the entire company. But not every division is being treated equally here. "We define various cycles that we are tackling separately for the moment," says Hans Seifert, chief executive of the Boston Consulting Group in Munich. These include—in addition to the development cycle—the supply cycle and the delivery cycle.

If management has brought itself to reorganization of the R&D division, by so doing, it forces an open door for active researchers and developers. As the Bochum study proves, above all the R&D personnel from firms in hotly contested markets are demanding better collaboration with marketing. The "creative basis" wants to look up over the rim of the plate.

Ulrich Baurmeister offered his employees an idea for this—with great success. Two and a half years ago the R&D head of the Membrana Division of Akzo Faser [Fiber] AG [German Stock Corporation] in Wuppertal introduced project management—with the help of outside consultants. The result: Ideas succeeded more quickly from the basis to the top, because the project structure turns the company hierarchy upside down. As members of a project group, even main department heads who have made their mark have to subordinate themselves—and listen.

Above all, researchers and marketing people sit at the same table. "Ideas existing in the market are discussed and are immediately crossed with research possibilities," says Baurmeister. "This potential was largely unutilized before now."

## French Officials Envision Increased Cooperation Between Civil, Defense Researchers

*92WS0386B Paris LE MONDE in French 14 Feb 92 p 22*

[Article by J. P. D.: "Civil and Military Researchers To Increase Their Cooperation"]

[Text] During the Wednesday 12 February meeting of the Council of Ministers, Mr. Pierre Joxe, defense minister, and Mr. Hubert Curien, minister of research and technology, introduced a document on exchanges between civil and military research.

"The fact is not widely known, but in France the connections between scientific and defense research are rather good," said Mr Joxe. This tradition—which many well-known scientists, such as Yves Rocard after the war, have exalted, and which the CEA [Atomic Energy Commission] has substantiated, in particular, through the concomitant development of the French strike force and France's installed base of nuclear power plants—can constitute a "weapon" of choice when necessary to adapt the country's defense to the new givens of international policy.

In effect, Mr. Joxe points out, the mission of the military will increasingly become "one of surveillance and prevention," for which they will rely mainly on space technologies—involving the Helios military observation satellite—and electronics (LE MONDE, 13 February). But this cooperation is not always well received by the scientists and, Mr. Curien acknowledges, the "Science and Defense" seminars "have done much to dispel some of the misunderstandings." The measures announced on Wednesday are aimed at expanding this approach.

"Particular attention will be paid to increasing the spinoffs from civil research that can be of military interest in the fields of electronic components, materials, robotics, and production technologies," the document states. In more concrete terms, the Defense Ministry plans to invest 1.3 billion francs[Fr] in enhancement of the research and educational facilities installed at Palaiseau (Essonne) around the Ecole Polytechnique and the Ecole Nationale Superieure des Techniques Avancees, and to double the number of call-ups of the "scientific contingent."

The two ministers state their intent to develop the "geographic poles" at which, as at Toulouse and Bordeaux, "laboratories, educational centers, and industrialists, already work together, to the benefit of defense research and civil research."

## German Memorandum on EC Policy Summarized

*92MI0401 Bonn TECHNOLOGIE-NACHRICHTEN MANAGEMENT-INFORMATIONEN in German 29 Feb 92 pp 11-12*

[Text] During 1992, research ministers meeting in the EC Council of Ministers will adopt major guidelines on future European research policy. The Council's agenda will include evaluation of the second EC framework program, examination of the third, and the Commission's proposals for the fourth framework program. The total financing involved is likely to exceed ECU10 billion over five years.

The federal government has presented a memorandum as a contribution to the discussions, as it considers it important to further increase the effectiveness of EC research policy, thus improving the division of work and responsibilities between national and community research funding. The major points are as follows:

- The specific programs should be better tied in with one another and focus on priorities;
- Concentration on precompetitive application-oriented research (including standards and protective research [Vorsorgeforshung];
- EC-wide integration of climate research into an overall strategy;
- All EC projects should be brought under EUREKA [European Research Coordination Agency], and EUREKA should be used to implement EC research policy;
- Improved access by small and medium-sized enterprises to EC research funding;
- Decentralization of EC program management with the assistance of national facilities;
- Medium-term increase to 6 percent in the share of the EC budget devoted to research (it is currently 3 and 5 percent).

### Greatest Growth in Protective Research

The German idea is that the proportion of the overall program devoted to climate, environment, and marine research should rise by almost 56 percent (to 14 percent from the present 9 percent), the nuclear safety share should rise by over 71 percent (to 6 percent from the present 3.5 percent), and the renewable energies share by almost 79 percent (to 5 percent from the present 2.8 percent).

As regards environment research, the EC should increase its funding of demonstration projects to promote the application of EC funded technologies developed in the member states. Nuclear safety has received too little attention in the third framework program and this cannot be justified in view of the community's responsibility, including that towards Central and Eastern Europe, and of the common interest in stringent, uniform international safety requirements. A common EC strategy is needed, extending also to increased reactor safety. The fourth framework program must include provisions to support this strategy in the research sector.

Regarding renewable energies, the two framework programs' excessively low funding allocations were accepted perforce by the federal government as a compromise to avoid the entire program foundering. The government is now calling for a disproportionately high increase in funding for this area.

### Focus on Application-Oriented Programs—No Sectorial Funding

The application-oriented programs (at the precompetitive stage) on information technology and telecommunications, industrial and materials technology, biotechnology, and renewable raw materials should continue to form the core of EC research funding, receiving up to 60 percent of the fourth framework program's funding. However, information technology and telecommunications should be reduced from the present level of almost 40 percent to around 34 percent of the framework program, largely to the benefit of biotechnology and

preventive research. The second largest area, preventive research, could receive up to 35 percent. The federal government is thus clearly pressing for concentration on the real objectives of research funding as set out in the EEC treaty, namely, enhancing European economic competitiveness and maintaining the community's basis for existence. Basic research, which should remain largely the preserve of member states and self-governing scientific bodies, must be the exception rather than the rule in the community's framework program.

Application-oriented research funding must not be equated with sectorial funding. Furthermore, the federal government opposed both programs in individual sectors and the similarly-structured "targeted" projects, because it is convinced that they do more harm than good to European industry's competitiveness.

**Improving the Prospects of Small and Medium-Sized Enterprises (SME)**

Their remoteness from the commission's headquarters, problems over language and financing, and personnel difficulties place SMEs at a particular disadvantage when applying for community funding. In addition, the time and resources they spend on preparing applications for funding are often far out of proportion to the eventual benefits. Consequently, the potential of SMEs remains insufficiently exploited and funded. Support systems need to be provided, such as contact centers in individual member states, i.e., program administration must be decentralized, preference for SMEs must be built into calls for applications, and sufficient time must be allowed for applying and making the necessary preparations.

**R&D To Receive 6 Percent in the Medium Term**

The EC as a whole will become increasingly dependent on exports and, consequently, on the advanced technologies that it will need to stand up to international competition. Research and development both in this area and for the purpose of maintaining and improving living standards in the Community require an ever-increasing financial commitment, which in itself justifies increases in Community research funding. Additional factors include the increased responsibility for research under the new treaty on political union, the European economic area, and the new scope for scientific cooperation created by the opening up of eastern Europe, all of which require a greater commitment on the part of the community. The federal government therefore supports the target set by the EC Council back in 1985 for 6 percent of the EC budget to be allocated to research and development in the medium term.

**Central and Eastern Europe**

EC programs have already been considerably opened up to the countries of Central and Eastern Europe, largely at German prompting. The federal government is not currently calling for funding measures aimed specifically at countries on the fringe of the EC, nor for a special R&D program for Central and Eastern Europe, as the community already has special funds for supporting cohesion policies (regional, structural, and, shortly, cohesion funds too), and its R&D program is to a large measure open to Central and Eastern Europe. The current most urgent problem there, the development of an R&D infrastructure, is being addressed by separate EC and German aid programs, which are currently being launched.

## Status of Research in Eastern Germany Noted

*92WS0402A Duesseldorf HANDELSBLATT in German 6-7 Mar 92 p 6*

[Text]

**Research: Association Presents Guidelines**

**Institutions in East To Become More Transparent**

With the transition from a central planned economy to a social market economy, a number of legally independent research and development (R&D) institutes have been formed in the new German states. These R&D sectors—most of which have emerged from former collective combines—want to exist independently on the German research market as suppliers of research and scientific and technical services.

In order to make the dynamic development process and associated problems of these research institutes "more transparent," the "Otto von Guericke" Association of Industrial Research Societies (Arbeitsgemeinschaft industrieller Forschungsvereinigungen) [AIF] has published an updated brochure. This overview of 191 independent business-oriented R&D institutes in the new states should clarify the current range of services for interested parties and potential clients.

Altogether, the institutions included in the list have a total of 16,842 employees, 9,259 of whom work in R&D. According to AIF, the number of R&D employees has decreased by about 5,663 since the end of 1990, although the number of institutions covered has increased. Employees of the 13 business or production areas of the Carl Zeiss Jena GmbH as well as Jenoptik GmbH, which are not legally independent research institutes, are no longer covered.

The total volume of funds for R&D is 433.6 million German marks [DM]; state authorities made about DM213.7 million available in 1991.

The publication is enlarged above all by the inclusion of 23 business-oriented institutes from the "Blue List" and 19 Fraunhofer Institutes, which developed largely from institutes of the former East German Academy of Sciences. In addition, 10 newly founded major research institutes were included in the brochure.

## Three New Research Centers in Eastern Germany Described

*92WS0421B Duesseldorf HANDELSBLATT in German 12 Mar 92 p 25*

["New Centers Set New Emphases"]

[Text] HANDELSBLATT, Wednesday, 11 March 1992, Potsdam—With the establishment of three new research facilities in eastern Germany, the number of major research centers in the Federal Republic has not just risen to 16. But, in addition, the establishment of the Max Delbrueck Center in Berlin, the Environmental Research Center [UFZ] in Leipzig/Halle, and the Earth Sciences Research Center [GFZ] in Potsdam will now eliminate certain research deficits and emphasize previously inadequately studied topics.

Dr. Gebhard Ziller, state secretary of the Federal Ministry of Research and Technology [BMFT], noted this fact on the occasion of the first assembly of members of the Association of Major Research Establishments [AGF] in one of the new Federal States. In recognizing this status of the former GDR institutes, the federal government and the states have implemented the recommendations of the Science Council which states that the establishment of such research centers should remain limited to cases "in which special professional and programmatic aspects imply long-term, convincing prospects for a major research center."

The three new centers have a budget of about 150 million German marks [DM] at their disposal for 1992. By way of comparison, the 13 non-university major research in the old States, former West Germany, estimate an average expenditure of DM2.5 billion. Both Ziller and AGF chairman Professor Walter Kroell made it clear that considerable funding will be required for the new States because of the need to catch up technically and in their building program. Kroll did not want to cite the particular amount of investment needed. It was made clear in Potsdam yesterday that the goal is to have the level of equipment in the eastern centers match that in the West within the next few years.

According to the BMFT state secretary Ziller, the "austerity program" set for the 13 West German research centers for the medium term has nothing to do with the special investments required for the new States. Again according to Ziller, the catch-up program in the East has to be covered separately and additionally. On the basis of available data, the expenditures per person in the eastern German centers will be about DM180,000 higher than in the West. There is some discrepancy in the comparable amounts spent per person in the western centers. Ziller gives a figure of DM170,000, while Hinrich Enderlein, the research minister of Brandenburg says it is DM275,000.

### New Structures for Medical Research

The Max Delbrueck Center for Molecular Medicine [MDC] in Berlin-Buch will—through close cooperation with university hospitals—inaugurate "entirely new structures for medical research." The MDC has a 1992 budget of DM63.4 million for 475 positions. According to the figures available, the Buch center will, after taking into account all the facilities of the three former institutes of the Academy of Sciences (1,600 employees, and other positions financed by other programs and resources), have exactly the same number of workers as during GDR times.

The UFZ, situated in Leipzig and Halle, has a budget of DM49.5 million for 355 positions. For the first time, exclusively environmental questions will be dealt with in this major research center. Already reaching beyond its planned strength, the UFZ has advertized for 100 additional special project positions.

And, finally, the AGF will be able to remedy a long-standing shortcoming with the establishment of the GFZ [Earth Sciences Research Center] in Potsdam. Besides its own research program, the GFZ will support universities and other earth science research facilities in the planning and execution of major earth science projects and special tasks at the national and international level. This center has a budget of DM50 million for 348 positions.

In addition, the major research establishments of former West Germany, which were 90 percent-financed by the federal government, will—on the recommendation of the Science Council—found eight new branch offices in the new States.

## German Trade Union Calls for Industrial Policy for Computer Industry

*92WS0421A Duesseldorf HANDELSBLATT in German 25 Mar 92 p 4*

["Maastricht Agreement Could Be the Basis of a Common European Defense Front"]

[Text] **In a statement on the situation in the EDP industry within the framework of CEBIT, Siegfried Bleicher, executive officer at IG Metall, explains just what IG Metall hopes to accomplish under its insistent industrial policy, namely, a cooperative policy-making arrangement between the computer industry and the government.**

EDP is one of the key industries of modern times. Almost all the metal industries, a prime example is machinery manufacturing—an industry whose future is strongly linked with that of control technology, are dependent on the development of EDP as far as their activities are concerned.

### More Than 50,000 Jobs are at Stake

From the point of view of IG Metall, the crisis in the EDP industry also has an employment policy dimension. When the personnel development plans of the most

important enterprises in the metal industries, which have been made public in recent weeks, are reviewed, the conclusion is inescapable that in the medium term 50,000 highly skilled positions are at stake.

An employment loss of this magnitude would also result in a loss in technical know-how for the country. Moreover, in view of the plans of entire sectors as, for example, those being implemented in the Philips Company, the crisis in the EDP industry will have considerable structural and political effects.

According to Bleicher, the causes of the crisis in the computer industry are varied. One decisive factor is certainly the price drop "resulting from murderous international competition." The fact that in many companies management errors have contributed substantially to the current situation also cannot be overlooked. Developments in the Nixdorf enterprise are a good example of this. Increasingly, however, global developments are deciding the future of whole industries on a national and international scale.

Bleicher laments: "We have not yet succeeded in drawing the necessary industrial and research policy conclusions from the crisis in the EDP industry." The fact is that the necessary investment and R&D capacities in some sectors exceed the capabilities of existing business sizes in Germany and Europe. If a serious effort is to be undertaken to confront international, but especially Japanese, competition, entirely different company sizes would have to be achieved.

Without the requisite governmental support, however, it would be impossible to implement this concept. Furthermore, it will also become necessary to establish a specific research and technology policy on a European scale. For the first time, by virtue of the decisions taken at Maastricht, the European Community has recognized the need for a common European industrial policy.

With respect to computer hardware, the fact cannot be ignored that the position of Germany vis-a-vis many cheap southeast Asian suppliers is poor. Bleicher elaborates: "I want to emphasize that in this regard I do not specifically mean Japan, but rather other supplier countries whose industrial structure is such that even in the event of a radical lowering of costs in Germany, there would still be hardly any chance to be truly competitive. Consequently, German and European suppliers have to concentrate on existing niches and special sectors of the market."

In view of this worldwide competition the German Government will, at last, have to establish a national council for the EDP industry. In doing this, Germany need not copy the MITI [Ministry of International Trade and Industry] example. But the cooperation and integration of various policies and activities between companies, the government, and the unions will be necessary.

**Only Suppliers and Component-Makers in the Future**

There will even have to be consultative bodies at the level of European companies for the EDP industry. To effectively confront other competitors, the necessary industrial cooperation as well as a common policy would have to be coordinated.

In no way does Bleicher want to use the word protectionism. But no one can honestly speak of a fair competitive situation on a global scale for the European EDP industry. Two possibilities exist: Either Europe rouses itself and takes a major industrial and political initiative to stabilize the EDP industry, or the European EDP industry degenerates into component-makers and component-suppliers.

## EC-US Stalemate on Airbus Subsidies Continues

*92WS0435A Paris LE MONDE in French 20 Mar 92 p 18*

[Article by special Brussels correspondent Philippe Lemaitre: "No Progress in Euro-American Negotiations to Limit Airbus Subsidies"; first paragraph is LE MONDE introduction]

[Text] Preliminary Euro-American talks on Tuesday, 17 March and Wednesday, 18 March in Brussels produced scant results. The discussions dealt with limiting European government subsidies to Airbus manufacturers and reforming international trade in commercial aircraft. A new meeting was scheduled for next week.

Should preliminary Euro-American talks on Airbus subsidies fail, the United States could well refer the problem to GATT—the organization that regulates world commerce—and request the formation of a "panel," or arbitration body. But the Community was scalded by the conclusions of an earlier panel the Americans convened on German exchange guarantees to Deutsche Aerospace, and apparently has no intention of rolling over and playing dead this time. (An expert who is neither French nor German described the earlier panel's conclusions as "unbelievable, pure hogwash.") Consequently, the EC may oppose convening a panel around GATT's "subsidies code," and agree to arbitration only if it is based on the "civil aircraft code." The latter is better suited to the problem at hand and more open to the Community's arguments.

The chief bone of contention between Europeans and Americans is the cap that should be set on government reimbursible loans to manufacturers (in this case, Airbus Industrie partners). The Americans did not want to budge from 25 percent at most, while the Europeans do not seem ready to come down below 35 percent. There is also disagreement on the interest rates that should apply to such loans. "The gap," explains a participant, "is significant. What the Americans are recommending would double the interest costs borne by European manufacturers."

The EC camp insists that equivalent restrictions be applied to indirect support. It is thinking of the kind, especially technological, enjoyed by manufacturers such as Boeing. The Seattle aircraft maker benefits from research and development programs that are federally funded and carried out by agencies such as NASA, which then communicate their results to the company. The European Commission conducting the preliminary talks presented a detailed proposal on the topic. The Americans accept the idea in principle, but differ with the Europeans as soon as the discussion turns to the nuts and bolts of how the restrictions would apply to indirect advantages.

## Riesenhuber on Progress in East German Research

*92WS0453A Duesseldorf HANDELSBLATT in German 1 Apr 92 p B1*

[Article by Heinz Riesenhuber (German Minister for Research and Technology): "Development of United German Research Community Makes Progress"]

[Text] HANDELSBLATT - TL, 31 March 1992—We have on our hands the job of integrating the former GDR's centralistic and over-sized system of extra-university research into the research community of the German Federal Republic without inflicting, as far as possible, any undue hardships. Two guiding principles were observed in the process: 1) the appraisal of the scientific quality and competence was to be done in a procedure organized by the science itself, and 2) the former GDR research community was to be restructured on the basis of principles like the freedom and self-determination of the science, federalism, competitive research, and the promotion of subsidiary research.

The Science Council, in cooperation with about 200 German and foreign specialists, undertook the professional appraisal promptly and thoroughly. This task was the basis for the entire reconstruction of the research community in the new States. The result of this appraisal, which, by the way, has been assessed by most of those involved as having been fair and necessary, revealed that there were and continue to be many good and even outstanding eastern German scientists. This scientific potential will not only be retained, but it will be promoted.

The German Federal Ministry for Research and Technology [BMFT] has supported and developed the necessary wherewithal for the restructuring of extra-university research in the new States promptly, innovatively, and in a completely nonbureaucratic manner. Utilizing facilities like the coordinating and cooperative offices of the institutes of the former GDR Academy of Sciences, it became possible to attack many problems like consultation, information, help in founding establishments, means of transportation, requalifying of specialists, and ABM in the research sector at the same time.

### Industrial Research in a Bad Situation in the East

Industrial research is in a bad way in the East. The BMFT supports research having immediate economic value through special aid programs: R&D personnel development, market research and development, model promotion of technology and founder centers in 15 locations, and the support of technology-oriented establishments. These programs combine employment programs and innovative aspects. They are aimed at retaining research personnel wherever possible and placing them in new positions when necessary; the programs also strive to strengthen the competitiveness of the smaller and medium-sized companies.

Today, much more than the mere outlines of the newly structured research community are in place in the new States. The facilities established there are already part of the newly united German research community. Under the administration of the BMFT alone are the following research centers: three new major research facilities [GFE] and nine GFE branches, 24 so-called "Blue List" institutes (viz., institutes supported jointly by the federal government and the states) and six Blue List branches, 21 facilities and working groups of the Fraunhofer Society, as well as two institutes and 29 working groups of the Max Plank Society. About 7,100 positions have been created. To these must be added 2,000 positions in the Scientists Integration Program [WIP], and 2,500 research-related positions within the framework of ABM. The aim of the Scientists Integration Program is to provide scientists of the former Academy of Sciences a new career in the universities. Within the jurisdiction of other federal departments, about 1,000 positions were created in research facilities jointly financed with the states.

I am confident that the new institutes and the researchers working in them will soon enrich and invigorate research throughout all of Germany and in the not too distant future do the same for international science as well. My expectations are based on the following considerations:

—We have introduced new professional specialties as, for example, with the Environmental Research Center in Leipzig-Halle and the Max Delbrueck Biomedical Center in Berlin. These and other facilities complement the previously existing spectrum of basic research and health care centers. The field of practical applications too has been broadened as, for example, in the case of the Fraunhofer Society institutes, which directly benefit the economy.

—We have also built new structures to the house of research. The various extra-university research facilities are somewhat differently distributed in the new States as compared with their distribution in former West Germany. There are fewer small and specialized major research facilities. On the other hand, the number of new Blue List institutes is comparatively large, reflecting the diversity and the federal structure.

I have special confidence in the productivity and creativeness of all those who work in the new institutes. Now that the old command structure has been removed, good research will develop naturally under the new conditions. Of course, in certain fields there will have to be a considerable amount of catching up. The emphasis in this regard will be on new equipment, renovation and improvement of the physical plant, and better housing. The situation has to be improved gradually.

The BMFT has made a total of 1.6 billion German marks [DM] available for institutional and project support in eastern Germany in 1992. The funds contained therein from the specialized programs represent a target amount. The university, the extra-university, and the economy-related research facilities will compete for the funding. Of course, research policies cannot be expressed solely in monetary amounts. We should not just concern ourselves about costs, but about returns as well. It is primarily the scientists themselves, the facilities, the sponsoring and promoting organizations, who are responsible for the quality of the returns, however difficult they may be to measure. It is they who must work under and observe the conditions established jointly by the federal government and the new States.

In the coming years, I watch for this current impetus to found and renew the research facilities in the East to be converted into real research achievements. These attractive, newly established research facilities are not just going to represent "innovation nuclei" in the new States, but will be model assets in and for a united Germany. They will be of interest to investing and researching companies and for all the world's scientific communities.

## Siemens Manager on State of European Research

*92WS0453C Duesseldorf HANDELSBLATT in German 1 Apr 92 p B3*

[Article by Hans Guenter Danielmeyer (Director of Central R&D, Member of the Board, Siemens): "Engagement in Research Pays Off: Europe's Enterprises Must Coordinate Their Activities"]

[Text] HANDELSBLATT - TL, 31 March 1992—Both the standard of living and the quality of jobs in Germany are particularly dependent on exports. German industry has achieved above-average success with research-intensive products. It apparently is also sound policy that Germany, together with Japan and the United States, is one of that small group of top industrial nations, in which almost 3 percent of the gross domestic product is allocated for research and development.

This financial engagement contributes decisively to the innovative capacity of our industries. On an industrial average more than half of the innovations (in large enterprises it is as high as 70 percent) are introduced through research. The electronics engineering and machinery manufacturing employment-intensive sectors are in the front ranks of innovators.

Conclusions may be drawn from a comparison of the technological state of the regions comprising the triad United States-Europe-Japan as to which fields European industry must address most intensively in the 1990s. Comparative evaluations of the triad often indicate that Europe leads or at least has an advantage over the United States and Japan with respect to power engineering, telecommunications, and environmental technologies. With respect to automation technologies, medical technologies, new materials, and sensor technology, Europe is about on par with the other members of the triad. As for microelectronics and end equipment in information technology, however, Europe lags behind its competitors.

When viewed more closely though, these overall evaluations do not tell the whole story. In the case of some of the examples cited, we are dealing with key technologies of strategic importance having effects right across our economy. Europe cannot afford to be content with its inferior position vis-a-vis these technologies, if we want to remain masters of our future. It is not a question of money, but rather of setting the right priorities and the willingness to work together.

Information and communications technologies are rightfully treated with strategic priority throughout the world. High R&D expenditures for hardware and software developments alone mean nothing. Only companies that are able to secure sufficiently high market volumes can prevail. The unified European market will help in this regard. At the same time, however, a balanced approach to markets outside Europe must also be achieved. In some areas, the situation may be represented as follows.

Developments in the communications industry are governed by the rapidity of technical progress in microelectronics, optoelectronics, and data processing, as well as by the requirements of new applications and services. Consequently, in future, only a few competitors, operating globally, will be able to play a role.

### International Cooperation

The situation in data processing is characterized by the increasing importance of open systems and standardized software. The readiness and ability of companies for cooperation has been strengthened by the precompetitive European R&D programs. The planned Trans-European data systems enjoy good prospects of success because they will be employed in areas requiring cooperation and agreement. Standardized and unified software engineering should also come about through joint development and applications platforms.

The world market in microelectronics is characterized by the clear dominance of Japanese producers, especially of memory components. Microelectronics is per se a key technology, whose availability is vital for countless industries. The complexity of microelectronic solutions and the extremely high expenditures demand that a close relationship exist between the producers and the users. The existence of such a relationship is one of the

essential prerequisites for competing in the world market. Company alliances, established for the purpose of having the most efficient technologies available and of developing new sales enhancing techniques, have become increasingly important.

Even the best individual research and technology accomplishments will only enjoy limited success if they are not embedded in an overall industrial strategy. This overall strategy has to take into account the fact that European companies in the home market will be in a highly competitive, previously unknown situation from 1993 on. This will mutually affect all European companies. Moreover, non-European competitors will be pushing into the home market even more vigorously than before. According to OECD [Organization for Economic Cooperation and Development] statistics, Japanese companies have increased the number of their overseas production facilities in Europe from 7 to 16 percent in the last 15 years.

With the home market unified, Europe has now begun industrial policy talks on how European industry can best withstand the expected global challenges. On 18 November 1991, the EC Commission in a statement of principle happily developed an industrial policy for the electronics and information industries, which addresses these issues, takes into account the viewpoints of the industry, focuses on strategic goals, and promises supporting measures in the fields of demand, foreign relations, and company problems.

## CORPORATE ALLIANCES

### CEA, EDF, Framatome Sign Financial Agreement

*92WS0338C Paris AFP SCIENCES in French 30 Jan 92 pp 26-27*

[Unattributed article: "CEA [Atomic Energy Commission]-EDF [French Power Company]-Framatome [Franco-American Nuclear Construction Company] Agreement on Research Financing"]

[Text] Paris—On 24 January, the CEA, EDF, and Framatome signed a framework agreement clarifying the rules concerning their respective shares in financing research programs on nuclear reactors and fuels, the CEA announced.

This agreement, which reflects the CEA's concern for openness, aims to "formalize through a contract" the relations of the CEA with its partners in research by clearly defining client-supplier relationships. It should enable them to define research objectives jointly and to determine how the financial effort should be apportioned among the CEA and the two companies.

Long-term research (intensive waste reprocessing, future reactors) will be led and financed mostly by the CEA, whereas short-term research, performed at the request of EDF and Framatome, will be financed mostly by the two industrial companies. Projects carried out in cooperation with EDF and Framatome account for about 1 billion francs [Fr] per year, half of which will be provided by the two companies, the CEA general manager, Mr. Rouvillois, indicated.

Starting in 1991, the agreement will result in a 50 percent increase in Framatome's financial contribution to the CEA (up to Fr150 million), while the contribution of EDF will rise from Fr400 million to Fr430 million. The agreement will apply retroactively to 1991. Negotiations on a similar agreement with COGEMA [General Nuclear Materials Company] continue.

According to Mr. Rouvillois, this agreement "represents a significant cultural change" for the CEA. Until now, cooperation rules were defined "empirically" and relied on financial bases that were not always very reliable. For instance, EDF used to pay the CEA a set fee of Fr350 million, and the CEA would "give it a content." However, "like any other research organization, the CEA is justified only to the extent that what it does is useful" to industrial companies.

The CEA took this opportunity to thoroughly review with its partners the research programs it is carrying out and those that EDF and Framatome are carrying out on their own. "This inventory led to enhanced rationalization based on the interest shown by the industrial companies and the identification of duplications" in a (small) number of research fields, Mr. Rouvillois indicated.

### Fokker, Deutsche Aerospace Discuss Cooperation

*92WS0402B Duesseldorf HANDELSBLATT in German 5 Mar 92 p 1*

[Text]

**Fokker: Daimler Subsidiary DASA Desirable Partner**

**Netherlands Wants to Cooperate**

The Dutch aircraft manufacturer Fokker N.V., Amsterdam, and the Daimler-Benz subsidiary Deutsche Aerospace AG (DASA), Munich, have agreed to discuss the possibility of closer cooperation, according to information from the Dutch firm.

DASA/MBB currently supplies Fokker with fuselage components for the Fokker 100. In principle, according to Fokker, the two sides, together with the Irish bomber subsidiary Shorts Brothers, also agreed to cooperate in the planned Fokker 70 regional aircraft. A DASA spokeswoman added that no agreement has been signed yet.

As a Fokker spokesman told HANDELSBLATT, the talks now underway assume that a possible interest of the German firm in the Dutch manufacturer will also be discussed. DASA denied this interpretation and said that

there was no agreement to discuss more intensive cooperation. Contrary to other information, Deutsche Aerospace, within the framework of the DAA consortium, will stay with the planned 80- to 130-seat regional aircraft.

DASA merely announced that, within the European context, talks are going on with Fokker about more intensive collaboration in the production of the Fokker 100. DASA/MBB and Shorts Brothers are among the primary suppliers for the F100.

Following the 1987 deficit year, Fokker had spoken repeatedly of the need to assure international competitiveness of the company through cooperation on a European basis, with the German DASA/MBB named repeatedly as a possible partner. In 1991 the Dutch firm was able to increase its sales from 3.2 billion guilders (1990) to 3.8 billion guilders. Net earnings were increased to 87.4 (83.4) million guilders. Fokker once again paid an 0.75 guilder dividend (page 21).

## France's CEA, SGN To Collaborate on Robotics R&D

*92WS0424A Paris AFP SCIENCES in French 5 Mar 92 p 41*

[Article entitled: "CEA and SGN Sign a Nuclear Robotics Agreement"]

[Text] Paris—The Atomic Energy Commission (CEA) and the General New Techniques Company (SGN, of the General Nuclear Materials Company, COGEMA) reached an agreement to collaborate on nuclear robotics, the CEA announced on 4 March. They will develop applications for nuclear-fuel enrichment and retreatment plants.

The agreement essentially covers operation, maintenance, intervention, and dismantling [of the plants]. The CEA will develop the basic techniques and design the robot systems. The SGN will manufacture and market the products.

The CEA is involved in a similar partnership with Framatome, for robotics applications in nuclear reactors.

## Philips, Motorola To Collaborate on Integrated Circuits

*92WS0435C Paris LE MONDE in French 14 Mar 92 p 18*

[Article by Amsterdam correspondent Christian Chartier: "Philips and Motorola Step Up Collaboration on Integrated Circuits"]

[Text] It was learned on Thursday, 12 March in the Netherlands that the Dutch firm Philips and the American firm Motorola will codevelop the electronic chips used in the Eindhoven group's interactive compact discs (ICD). Motorola already makes some of the electronic components of the ICD, and Philips produces the rest. But the two partners have decided to move beyond their supplier-customer relationship to create what a spokesman for the multinational calls "a joint development unit" for the ICD's electronics.

Philips's spokesman went on to say that "10 people" would work in the "joint development center," which will be formed by this summer. But he declined to say where it would be located or how much Philips had agreed to invest in it. It is the Eindhoven multinational's first offensive move in the area of semiconductors and integrated circuits since the Megachip program to develop 1 megabit chips was discontinued and withdrawn from Europe's JESSI research program in September, 1990 (see LE MONDE, 6 September 1990).

However, "the importance of our association with Motorola should not be overblown," declared Philips's spokesman, anxious to play down a recent article that appeared in the Dutch economic weekly HET FINANCIEELE DAGBLAD. The article announced the creation "within the next few months" of a joint venture with Motorola to develop the specific-function chips (as opposed to memory chips) needed for Philips's consumer electronics division. The weekly claims the joint venture is to last at least 10 years.

"Several tens of millions of Dutch florins" will be invested, writes the journal, quoting the director of Philips's Interactive Media Systems, Mr. Gaston Bastiaens. At a conference the day before in San Francisco, Mr. Bastiaens explained that Philips wanted "to retain its lead in multimedia technologies" and so needed to design "faster and more powerful chips at a more rapid pace." That need spawned the idea of a "development center" that Mr. Bastiaens says will ultimately become "a platform for creation, where creators will practically work themselves to death."

## Sema Group, Sun Subsidiary Sign Software Engineering Accord

*92WS0435F Paris LE MONDE in French 13 Mar 92 p 24*

[Article entitled: "Sema Group/Sun Microsystems Agreement on Management Software"]

[Text] Sema Group, the Franco-British computer services company, and Sun Microsystems's French subsidiary, a computer manufacturer specializing in work stations and servers, have signed an agreement to collaborate in software engineering. They will work together on management programs. According to a communique published Monday, 16 March by the two companies, the agreement will enable the two groups to offer an integrated solution for the design, development, and maintenance of management programs in a Unix environment to the data-processing departments of large companies.

## CORPORATE STRATEGIES

### France: Dassault's Diversification Efforts Outlined

*92BR0191 Zellik INDUSTRIE in Dutch Feb 92 p 19*

[Text] Dassault Electronique is having a hard time. The company has to finance increasingly expensive research programs, while sales of military equipment are slowly but steadily petering out.

In 1963, this subsidiary of the Dassault group sprouted from Avions Marcel Dassault's electronics department. In the meantime, the market situation has completely changed. The company abounds with engineers and technicians—more than 3,200 out of a total of 4,070 employees—and deals with high technology in the areas of microelectronics and systems engineering.

For certain military activities, Dassault spends more than 40 percent of its turnover on R&D. It has recently invested 750 million francs [Fr]in a new research center in Saint-Quentin-en-Yvelines. However, the collapsing of the arms market gave the company a severe blow. Throughout the first half of 1991, defense activities dropped by 12 percent. This trend had already begun in 1990, when sales dropped by 7 percent. Fortunately, the company's pending are worth Fr8 billion.

The problem, however, is that the major programs which are expected to produce cash, will not reach the industrial stage until 1994. In addition, the defense budget is bound to be cut and the sector will have to be thoroughly reorganized in view of the new geopolitical situation. About 70 percent of Dassault Electronique's Fr4 billion turnover is achieved in the military sector. So 1992 will be the year of truth. Just like in 1991, defense activities are stagnating. For the second consecutive year, sales of military equipment will yield no more than Fr1.4 billion. Not one single Mirage—which accounted for one-third of Dassault Electronique's sales—was sold to foreign customers in the past three years. There are still the R&D contracts, but of course they do not bring in a lot of cash.

In order to overcome this slump, Dassault Electronique is now speeding up the diversification program it launched a few years ago. The aim is to focus on civilian growth markets. The company is concentrating on the marketing of telecommunications terminals and electronic banking systems. The new "Dassault Automatismes et Telecommunications" department is expected to reach an annual growth rate of 20 percent. This would enable it to achieve a Fr1 billion turnover in 1991.

At the same time, the company is turning toward new sectors. One year ago, Dassault Electronique set up DE31 Informatique, a subsidiary which specializes in engineering and integration of computer systems. It employs some 50 people and hopes to produce Fr300 million in added value by 1995, not including the sales of hardware.

Together with the American Nestor Inc., a company specializing in neuromimetics, Dassault set up Nestor Europe. This subsidiary will market Nestor's products and software. Neuromimetic technology originates from neurobiology and is used to build systems which can recognize and catalog objects, characters, and images. In addition, the company will focus mainly on markets which are closely related to defense expertise. And then, of course, there is the civil aviation sector, which is considering the introduction of passenger phones. For this Fr60 billion market, there are hardly any competitors, except for the U.S. company Bell Aerospace and Marconi Canada. In addition, Teradyne and Thomson-CSF are interested in the French chip software for ASIC [application-specific integrated circuit] design.

Due to this situation, Dassault had to proceed much faster than planned with its staff reduction scheme. In spite of the fact that most work is contracted out, some 306 employees had to be dismissed. The cost of this operation—Fr670 million—resulted into an annual loss of Fr250 million in 1990.

### ES2 To Increase IC Production Capacity

*92BR0240 Paris ELECTRONIQUE INTERNATIONAL HEBDO in French 6 Feb 92 p 8*

[Article by Didier Girault: "ES2 Turns To Mass Production]

[Text] ES2 [European Silicon Structures], initially a manufacturer of prototypes, intends to step up production capacity in order to increase revenues by 15 percent and to break even in 1992.

A 15 percent increase and break even; these are the 1992 objectives of ES2, which produced $30 million in revenues in 1991. To reach its 1992 goals, Amand Cochet, vice president of the company and head of sales in Europe, is banking on an increase in sales capacity: "We have left the era of growth based on the number of designs," he said, adding that the number of designs had only increased by 10 percent in 1991 (475) compared to 1990. In practical terms, to achieve its program, ES2 has decided to increase by 50 percent per year production capacity in its Rousset plant, which currently can process 15,000 125-mm diameter silicon wafers. For "large volumes" (commonly over 100,000 wafers), ES2 could use its partners—Philips, VLSI Technology, and TSMC [Taiwan Semiconductor Microelectronics Corp.]—as subcontractors.

As for guarantees of quality, this is ensured by its 1991 CECC [European Communal Credit Community] expertise award as well as by the Rousset unit's selection, within the framework of the EUCLIDE program (a military offshoot of ESPRIT [European Strategic Program on R&D in Information Technologies]), as pilot production site in Europe with EuroQML [Qualified Manufacturing Listing] qualification. EuroQML is the European counterpart—as its name suggests—of the

American QML standard. To obtain this, not only production logistics are screened, but also the development of libraries, software, sales processes, and technical assistance.

**Technology Range**

The Rousset plant, which is now five years old, will have to be renovated if ES2 wants to use it to manufacture circuits based on 0.5-micron CMOS [complementary metal-oxide semiconductor] technology (and beyond). So, rather than launching into heavy investments for the manufacture of circuits which, according to Amand Cochet, would only interest a small number of users by 1994-95, ES2 prefers to refine its current processes as well as the 0.7-micron CMOS technology, which will be set in motion this year, with a view to diversifying its range of technologies: making available double polyprocesses, low-power circuits. In this context, a 1-micron, 3-V, low-power CMOS process has already been developed. Its library will be available at the end of the second quarter of 1992. "This strategy meets the demand of users for exotic processes," ES2's European chief confirmed, saying that demand was very high for 1-micron CMOS circuits, but much less significant for 0.7-micron technologies.

Thanks to an agreement concluded in November 1991 with SOREP, ES2 launched into the production of hybrids on silicon substrate, one of the multichip module (MCM) technologies. In practical terms, SOREP is in charge of module design as well as chip mounting encapsulation, and testing.

**Break Even in 1992**

ES2 is in charge of the design and manufacture of the silicon substrate, and of the possible specific circuits mounted onto them. Amand Cochet specified that ongoing multichip research aims at making substrates "intelligent" by including functional cells, improving testability, and using flip-chip interconnections. This multichip research, which took off within the framework of JESSI [Joint European Submicron Silicon Initiative], is obviously part and parcel of the above-mentioned policy of extending ES2's supply.

ES2 considers that 1992 will be its break-even year. The main European manufacturer of specific circuits based on cell arrays (47 percent of this market segment) made its very first profit during the first quarter of 1991. However, Amand Cochet is confident: "With our good level of orders (up 72 percent for the first quarter of 1991 compared to the last quarter of 1990) and with the implementation of our financial restructuring conversion of part of the debt into shares and rearrangement of the balance's installment scheme), we will not have to call on our shareholders." The company expects a 15 percent increase in overall revenues, with the highest increases anticipated in northern European markets (Great Britain, Holland, Scandinavian countries) with 30 percent; Italy, up 20 percent; and Germany, up 15 percent or more. Sales in France, representing 25 percent of ES2's sales figure, should only increase by 10 percent. The United States, through the US2 subsidiary, will not be lagging behind with a projected growth rate for 1992 equal to the rate for 1991 (34 percent).

## Tulip Director Calls For EC Protectionism

*92BR0241 Amsterdam COMPUTABLE in Dutch 14 Feb 92 p 7*

[Article by Roel Mazure: "New Plea by Tulip for More EC Protectionism—Import Quotas for Non-European Computer Companies"]

[Excerpt] Hertogenbosch—Just like last year, Tulip Director F. Hetzenauer seized the opportunity of a product presentation in order to call for more protection of the European computer industry by the European Community. However, Hetzenauer did not join the group of lamenting top managers of computer manufacturers when he discussed the results of the year 1991. In spite of the recession, Tulip succeeded in making a small profit and its director is optimistic about the future.

Hetzenauer's plea for protective measures from Brussels in order to protect the European computer industry seemed a copy of his appeal made on the occasion of a product presentation in May last year. Hetzenauer is still justifying his call for such protectionism by the fact that the computer industry forms the basis for other industries. Among the steps which Hetzenauer thinks should be taken, he quotes the harmonization of legislation in the different European countries. "Before we launch a system in several European countries, it has to be tested by each of these governments for radiation standards, to name but one example. This requires additional efforts on our behalf, which we would prefer to use for product development."

In addition, he argues that investment regulations and tax systems should be standardized. He also believes that the introduction of import and production quotas for non-European computer manufacturers is "inevitable." Such a measure is intended to prevent dumping of products, a practice which Hetzenauer says is pursued by a number of companies from the Far East. He refused, however, to reveal the names of these companies.

Compared to last year, Hetzenauer sees one ray of hope in the "European Electronics and Information Technology Industry" discussion report which is presently circulating in Brussels. "They are much too late," he believes. "But at least they are now finally aware of the problems of our industry." Tulip gratefully seized the opportunity to exchange ideas with the EC about this report. Hetzenauer hopes that this example will be followed by many of his fellow-manufacturers.

**Optimism**

Many computer companies were in the red in 1991. Although Hetzenauer did not want to get ahead of the

accounting result of the past year, he seemed satisfied with the turnover achieved. Tulip made it through the "disastrous year 1991" relatively well. While, according to Hetzenauer, the European market dropped by as much as 15 percent, Tulip even slightly increased its sales figures in comparison with 1990. This result is due mainly to the new products which were launched during the second half of 1991. Halfway through the year, Tulip still seemed to be heading for an 8 percent decrease in turnover.

Thanks to this result, Tulip's European market share rose to roughly 2.5 percent. Tulip achieved its biggest growth in France. Hetzenauer said he was satisfied with his foreign sales companies, without however going into detailed figures. "We started to penetrate the international market in 1986. Now we are getting the benefits from that step." Tulip's goal is to acquire a 4 to 6 percent market share in Europe.

For the next few years, Hetzenauer is fairly optimistic. Naturally, he cannot anticipate when the recession will be over, but for the subsequent three to five years he thinks that an annual growth of 15 to 20 percent should be possible. Hetzenauer bases his optimism on the market penetration of computers in the U.S. industry. "As far as this market penetration is concerned, Europe is 25 percent behind the United States," he argues. "As soon as the recession will be over, the European computer industry will start to catch up."

There is an increasing demand for the integration of products on the automation market. According to J. Hartsuiker, general manager of Tulip's Dutch branch, his company is increasingly involved with consultancy, network engineering, and training, in other words, with services which add a certain value to hardware. "The conversion from hardware supplier to automation company has already been initiated," he concludes.

However, this does not mean that Tulip will come forward as a so-called systems integrator. The Project Office set up by Tulip should rather be seen as a knowledge center in the field of networks and infrastructures. In addition, the Project Office also assumes responsibility for the implementation, management, and control of overall automation projects.

But hardware will remain Tulip's main line of business. According to Hartsuiker, Tulip's market share in the Netherlands increased by 2 percent to 14 percent in 1991. The company's most profitable source of income was the 386SX segment, in which Tulip—according to Dataquest figures—is now a market leader with 17.4 percent. This year, Hartsuiker expects a major contribution from 486 systems, due to the wide acceptance of these systems. [passage omitted]

## Philips 1991 Results Announced

*92BR0263 Amsterdam COMPUTABLE in Dutch 6 Mar 92 p 15*

[Article by Paula van de Riet: "PC Group Not Yet out of Trouble"]

[Text] Eindhoven—Last year, Philips managed to make a profit. Profits from regular operations (981 million guilders) did not reach the 1 billion guilder mark, but in 1990, Philips overall losses amounted to more than 4 billion guilders, 3.27 billion of which was used for streamlining purposes [operation Centurion]. With nearly 57 billion guilders, 1991 sales remained at the 1990 level.

The recovery of Philips by means of "Operation Centurion" has not gone as quickly as the board of directors would have liked. "Add a result of slack markets, last year's sales figure for barley improved," said CEO J. Timmer. "Large-scale improvements cannot be made without risk and disappointments. The figures represent a start toward recovery. The most important goals which we set for ourselves in 1991 have been reached."

"We are not considering any further reductions in the concern. Neither Communication Systems, Medical Systems, nor Semiconductors will be sold," continued Timmer. "We want to have a wide range of activities so that disappointing results in one division can be offset by better results in other divisions." The exceptional assets and liabilities in 1991 amounted to 221 million guilders. The most important revenues came from the sale of 47 percent of Whirlpool (365 million guilders) and the sale of Information Systems (with the exception of the PC group) for an undisclosed amount. It can be gathered from the figures that at the time of its sale, the Information Systems division had incurred about 144 million guilders in losses. At the time, financial analysts estimated the value of this division at between 300 and 400 million guilders. Careful estimates now suggest that Digital has paid no more than 200 million guilders for the ailing Information Systems division. Philips will not make any comment on these estimates.

A major millstone round Philips' neck last year was the Consumer Products division, where net profits from 1.5 billion guilders in 1990 dropped to 1.01 billion in 1991. The prices of consumer electronics products dropped by an average of 5 percent in Europe, according to Philips. Nevertheless, the results were propped up by a "considerable" growth in sales by Polygram and a stable growth in household appliances and products for personal care. No appreciable improvement of the situation in this sector is expected during the first quarter of this year.

In 1991 the PC group was moved to the Consumer Products division. By comparison with the corrected figures for 1991, this group appears in 1990 to have made a loss of as much as 150 million guilders, a loss still booked against the Professional Products & Systems division. In August 1991 the financial director on the

board of directors, Appelo, said that the results for the PC group in the first half of the year had improved by 100 million guilders. However, "the PC branch was in the end unable to stay aloof from the general slump in the market," said Appelo last week.

CEO Timmer also announced reorganizations within the Consumer Products division as a whole. Measures will be taken which "within a foreseeable time will result in recovery of profits," he said. Timmer said that there would be no further reduction in staffing levels. "Who would there be left to do the work?" he joked. There will be a "continual process of adaptation." Since 1990 the Philips workforce has been reduced by 47,000 to its present total of 240,000.

The Professional Products & Systems division (PPS) produced much better results. Comparative revenues improved by 7 percent. In particular Communications Systems did well. This was particularly due to large investments by the new German federal states in the field of cable transmission systems, equipment for access to networks, and cable projects. Medical Systems did well in North America and increased its volume of trade. Industrial electronics went downhill as a result of reduced investment by industry. The explanatory notes to the figures revealed that Information Systems did much better in the nine months before it was sold to DEC than the same period of the previous year. Profits in the PPS division as a whole rose from 189 million guilders in 1990 to 744 million last year.

The sales figure in Components and Semiconductors was 3 percent lower than in the previous year. Semiconductor sales went up, but that for components went down. Cost reductions, among other factors led to a major increase in profits. The giving up of aspirations in the field of the superchip also had a positive effect on profits. "We are pleased with the developments in Semiconductors," said board member Appelo. In 1990, this sector incurred 43 million guilders in losses; in 1991, it made a profit of 613 million.

Timmer also announced that no dividend for 1991 would be paid to shareholders. "We made 981 million guilders in profits from everyday operations. It would take 600 million to pay out a dividend of 2 guilders per share. We hope that our shareholders will understand that this would be impossible." That understanding was evidenced on the stockmarket; Philips' shares rose on Thursday last week by 3.20 guilders to 35.60 guilders. On Wall Street, shares were changing hands at 37.50 guilders.

## Eutelsat 1991 Results Presented

*92BR0300 Antwerp DE FINANCIEEL-EKONOMISCHE TIJD in Dutch 8 Apr 92 p 11*

[Article: "Gulf War and Eastern Europe Yield Big Profits for Eutelsat"]

[Text] Last year, television companies intensively used the satellite links offered by the European telecommunications satellite organization Eutelsat for their news coverage of the Gulf War and the events in eastern Europe. The organization announced in Paris that its 1991 profit increased by as much as 55 percent is partly due to these events.

Last year, the use of Eutelsat satellites for direct television reporting increased by 90 percent. Because Eutelsat gets 67 percent of its overall profit from the use of satellite links by radio and television stations, the events in the Middle East and eastern Europe had a favorable impact on its operating results.

Eutelsat, whose satellites also support telephone and data links, increased its profit to 925 million Belgian francs [BFr] (up 55 percent); profits over 1990 amounted to BFr611 million. Turnover increased by 48 percent from BFr5.5 billion in 1990 to BFr8 billion in 1991.

At present, the organization has seven satellites in use. The last one was commissioned last January. Eutelsat, in which 28 European countries participate, intends to launch two more telecommunications satellites later this year.

## France: CEA Revenues May Fall After TCI Merger

*92WS0338B Paris AFP SCIENCES in French 30 Jan 92 p 7*

[Unattributed article: "The CEA [Atomic Energy Commission] Fears a Reduction of Its Budget Following the Creation of TCI [Thomson-CEA Industries]"

[Text] Paris—The CEA is concerned that its budget might be cut following the TCI merger, and it hopes the government will find a way to make up for it, the CEA general manager, Mr. Philippe Rouvillois, told the AFP [French Press Agency] on 24 January.

The merger of CEA-Industries' civil nuclear operations and Thomson's civil electronic operations to form Thomson-CEA Industries will result in a revenue loss of some 400 million francs [Fr] per year for the CEA, Mr. Rouvillois estimated. The CEA will retain a 30 to 35 percent interest in the new group.

The public research organization will, in fact, be deprived of the dividends it used to receive from Framatome [Franco-American Nuclear Construction Company] and COGEMA [General Nuclear Materials Company], two CEA-Industrie subsidiaries, which made up for the decline in state subsidies. "Considering the financial needs of the electronics sector, it is unlikely that the new group will be able to make substantial profits" for several years, Mr. Rouvillois estimated.

The CEA already has "a very tight" 1992 budget, as it is affected by "the repercussions of budget cuts in defense

activities," which translated into a Fr400 million reduction in the state subsidy to the CEA's military budget. As for the civil budget, with Fr9.67 billion, it has been cut by 1.8 percent in 1992, and the state subsidy, set at Fr6.27 billion for this year, is shrinking. According to Mr. Rouvillois, "economizing is not a solution," even though "it is always possible to try and improve productivity."

## Deutsche Aerospace, AEG Cooperate in Microelectronics

*92WS0388A Duesseldorf HANDELSBLATT in German 4 Mar 92 p 16*

[Article: "Microelectronics - AEG and Dasa Cooperate"]

[Text]

### Daimler-Benz is Becoming a Technology Company

The Daimler-Benz subsidiaries Deutsche Aerospace AG (DASA) and AEG AG want to combine their microelectronic activities in a new company named Mikroelektronik GmbH on 1 July 1992. Each company will hold 50 percent of the original capital of 600 million German marks [DM].

The chairman of the board of DASA is Jurgen E. Schrempp. He views the restructuring within Daimler-Benz as an important step for moving from a purely automotive company to an integrated technology firm. In addition, the new company plays an important role in making up for declining sales in defense technology. Schrempp calculates the electronics needs of the Daimler company at DM6.5 billion. Company subsidiaries have provided only 7 percent of this amount. The new company should expand this to 20 percent.

According to the chairman of the board of AEG, Ernst Georg Stockl, AEG is still production-oriented. It is joining the development-oriented DASA so they will raise only one microelectronics flag for customers in the future. As a strategic goal, Stockl mentioned a dominant position particularly for application-specific problem solutions.

Sales of DM2.5 billion with 16,500 employees are the target for 1992. Sales are to increase to about DM4 billion and the number of employees to 19,000 within five years. Primarily the business with automotive equipment is to grow at an above-average rate in the branches of semiconductor technology, microsystems and special technology. This should make up 36 percent of the total sales of the new company. By 1996, about DM1.5 billion is to be invested in advance and about DM1.7 billion spent for research and development purposes. Mikroelektronik GmbH wants to be profitable by 1995. Stockl expects a negative company result of DM100 million in 1992.

Telefunken electronic GmbH (TEG) of Heilbronn is the current nucleus of the microelectronics business. Besides this company, AEG will contribute the branches of optoelectronics and vacuum electronics and the development center EZIS of Ulm, and Telefunken Kabelsatz GmbH of Frankfurt. It also will provide business guidance from its collaboration in Matra MHS S. A. in Nantes, FHP Motors GmbH in Oldenburg and Siliconix Inc., Santa Clara, U.S. From DASA, first the microelectronics operations of Messerschmitt-Bolkow-Blohm GmbH (MBB) in Nabern, Ottobrunn, and Schrobenhausen will be combined with the airbag activities of Bayern-Chemie in Aschau to form MBB-Mikro GmbH, and then transferred to the new company. The automotive activities of Dornier GmbH will be added to this. The restructuring is scheduled for completion by 1 January 1993.

## Cellular Phone Installation Costs Reduce Matra's Profits

*92WS0435E Paris LE MONDE in French 13 Mar 92 p 16*

[Article entitled: "Matra Communication Loses 9 Million French Francs [Fr] in 1991"]

[Text] Matra Communication lost 9 million French francs [Fr] in 1991 (the group's share of net earnings), after showing profits of Fr118 million in 1990. Turnover was Fr5.97 billion, a 10.3 percent increase over 1990 and a 5.7 percent increase for a comparable geographical area. Operating profits were Fr170 million, down 22.3 percent over 1990's Fr219 million. Expenditures to install the new cellular telephone network based on the European GSM [Groupe Speciale Mobile] standard continue to cut into the group's earnings. Marketing of the network in France is slated to begin in July. Matra Communication, which has already teamed up with Sweden's Ericsson to develop the network, is seeking another partner. The German company Siemens, but also the American company AT&T, which is trying to improve its position in Europe, may be interested, as might several Japanese companies.

## SGS-Thomson Closing Production Plants

*92WS0435G Paris LE MONDE in French 18 Mar 92 p 24*

[Article entitled: "SGS-Thomson Prepares to Close Inmos Factory in Newport (Wales)"]

[Text] SGS-Thomson is continuing to restructure. The Franco-Italian manufacturer of electronic components is preparing to close the factory of its Inmos subsidiary in Newport, Wales. The factory employs 450; its shutdown is expected to be effective within 12 to 18 months. SGS-Thomson cites the cost, which it says is too high, of work needed to modernize the Newport plant. According to the company, anywhere from 50-100 million dollars would have to be invested to adapt the plant to new product lines. SGS-Thomson is carrying $900 million worth of debt (about 5 billion French francs [Fr]) and has

17 other production sites. It has just invested heavily in its Agrate factory in Italy and its new Crolles site near Grenoble.

## France: Brisard Machine Tool Concerns Shortcomings Analyzed

*92WS0439 Paris INDUSTRIES ET TECHNIQUES in French 28 Feb 92 pp 42-44*

[Article by Mirel Scherer: "The Brisard Group, Ever Bigger, Ever Less Innovative: The Leading Machine-Tool Manufacturer Is Stalled"—first paragraph is INDUSTRIES ET TECHNIQUES introduction]

[Text] Same old catalog, questionable investments, key executives at odds with the company: Rene Brisard, the French machine-tool champion seems unable to consolidate the advantage gained in 1988 when he purchased the three MFL [French Heavy Machinery Company] factories.

Should Dampierre-sur-Salon be declared capital of the French machine-tool industry? This Haute-Saone village with a population of 1,237, 70 km from Dijon, is where the Brisard group moved its headquarters less than one year ago. An eight-story glass and steel tower built by the firm of architects who already proved themselves at La Defense stands imposingly right in the middle of the village, in a conservation area. The Charles Brisard building, named after Rene Brisard's father, is a symbol of the ambitions and enigmas of this secretive and distrustful entrepreneur. "Loulou," as he is called in Dampierre, is equally familiar with political circles and hostile to the media and to precise questions. He is prodigal of figures which are both spectacular and impossible to verify, and which do not meet any accounting standard. The acknowledged leader of the French machine-tool industry is also not a member of his industry's syndicate, the SYMAP. Rene Brisard has grandiose plans for Dampierre. His headquarters tower represents an investment of 45 million francs [Fr]. Across the street, on a site currently occupied by a metal construction plant (Brisard's original activity), he plans to build an all-purpose building to house a BMO [Brisard Machine-Tools] show room, an executive training center, and a shopping mall, at a total cost of about Fr27 million. The group's research and development department, officially staffed with 250 engineers, is also moving to Dampierre-sur-Salon. Finally, since 1990, a new ultramodern plant has been operating in Autet, 2 km from Dampierre: it has taken over the operations of the Colly-Bombled plant of Villeurbanne (sheetmetal processing machines) which was closed for good after many episodes following its entry into the group in 1984.

Why all these moves? What is the current situation of the group, which claims to have a staff of 5,000 and sales of Fr3.5 billion? Rene Brisard declined to answer in person any questions from INDUSTRIES ET TECHNIQUES. Yet, he has been playing a decisive part on the French industrial scene since that day in January 1988 when he became the last hope of the French machine-tool industry by taking over the MFL group, for a symbolic Fr1.

MFL was the result of the merger, sponsored by the first socialist governments, of three legendary plants of the French industry: Capdenac (Aveyron), Albert (Somme), and Saint-Etienne (Loire). Three plants which had in common technological genius and an appalling management. From 1980 to 1988, these units were showered with some Fr460 million in state funds, and literally overhauled at taxpayers' expense: CAD/CAM [computer-aided design and manufacturing] equipment, production plant, personnel training (not to mention the obligatory orders from nationalized companies, in particular those in the aircraft-armament sector), the state did everything or nearly everything.

Unfortunately, this exceptional effort was made "against the market": investment in the French industry was never as low. Result—the liberal Chirac-Madelin team that took over in 1987 put an end to the machine-tool plan and looked for someone to take over MFL. Backed by his friend Christian Bergelin, the Haute-Saone deputy and regional council chairman, Rene Brisard won easily. At the time, few companies were interested in staking Fr1, even a symbolic Fr1, on machine-tools. Few people realized at the time that MFL was at its technological zenith and had a backlog of 30 firm orders for machines worth Fr4 million to Fr16 million each! Luck also played its part by providing exceptionally favorable conditions during the next two years.

MFL put Brisard in a higher league: These were very sophisticated firms which had nothing in common with the small manufacturers of machine-tools, wood machines, and metallic structures that he had previously taken over.

Four years after the three plants were integrated into Brisard Machine-Tools, the results are very disappointing. In terms of technical innovation, market pressure, and industrial strategy, the Brisard Group seems to have been set back. At Capdenac and at Albert, the two former Forest-Line plants, no really new machine has been added to the BMO catalog: the Flexiax-408 horizontal machining center, according to its very users, is just a "remake" of a machine that had been in the Forest-Line catalog for five years; redone in the Japanese style, it contains no technological novelty, except for its ergonomic design and its minimum pallet size. At the last World Machine-Tool Show in Paris, Brisard exhibited only one machine equipped with interesting innovations: the TVM-100 lathe designed by the former Berthiez company of Saint-Etienne.

Generally speaking, all the machines listed in the BMO catalog were designed by MFL teams before MFL was taken over by Brisard. The Seramill, Majormill, Vecomill, and other machining centers, the Forest-Line three- and five-axis milling machines, the Fimax and Gimax

boring machines, are running at full speed at Aerospatiale and at Marcel Dassault, SNECMA [National Company for Aircraft Engine Study and Manufacturing], the GIAT [Industrial Group for Ground Weapons], and Peugeot. The TVR-100, LVT-LVM, and TDM lathes are used for machining at Michelin, Alsthom, SEP [European Propulsion Company], and Neyrpic. For all these major clients, however, the fat years of investing—1987-1989—are over and the obligation to display the tricolor on their machines is less pressing. Witness Aerospatiale, an MFL star customer, which now does not hesitate to choose a Yamazaki turning center for its Saint-Eloi plant, because it meets its work specifications better than a Brisard machine. It will do the same thing tomorrow, when it has to replace its heavy machinery.

Moreover, flexible cells and workshops no longer seem to be a priority. Yet, MFL had collected prestigious references in these fields: the Atlantic Mechanical Manufacturing Company (FAMAT in Saint-Nazaire) and Kongsberg (Sweden) in the aircraft industry; Michelin and Poclain in the tire manufacturing and heavy mechanics industries, etc. But BMO is not represented in any of the flexible workshops manufactured in France in recent years: not at Case Poclain in Saint-Dizier, where the Italian Mandelli won all the stakes; not at Caterpillar, which chose Mandelli (Italy), Waldrich and Schiess (Germany), and Pegard (Belgium) for its ambitious program to restructure French plants.

"French manufacturers often neglect to consult users outside of their traditional field of operation (the aircraft and weapons industry in the case of BMO), and they seldom analyze the causes of a failure," according to Michel Motura, technical director of the Case Poclain plant in Saint-Dizier.

"Obviously, I do meet BMO technicians at machine-tool shows, but we haven't seen them in our plants in the past six years. Yet, our flexible workshop could be a formidable testing bench to design future machines." Eric Rossero, sales manager at Rhone Machine-Tools, a Lyon-area dealer of equipment made by Brisard's competitors, confirmed that he seldom has to confront Brisard and that the latter's marketing policy seems rather soft.

This lack of effort and perspective is beginning to worry labor unions, which are represented in the former MFL plants but nearly absent at the other BMO subsidiaries. "We have trouble following the holding's policy," the CFDT [French Democratic Confederation of Labor] delegate in Capdenac admitted, looking at a 1992 backlog of orders that does not exceed three months. Same story at the Albert plant, where the backlog of orders—four to five months of work—is judged inadequate. It seems that Rene Brisard heard the message: working groups were just set up in Dampierre to analyze the causes of each failure to win the contracts on which BMO has bid.

One thing is certain: BMO's competitors, such as Mandelli or Cincinnati Milacron—to mention only these two—are active. They keep innovating and refining their strategies. At the World Machine-Tool Show, the Italian company demonstrated its ability to meet the demand for any application whatsoever, from self-standing machines to the most complex flexible workshops. As for the American company, it is offering a new family of machines for the aircraft industry, which was introduced at the Chicago IMTS [International Machine-Tool Show] in 1990. Although they compete on some bids, the two companies created a joint subsidiary in April 1991: Mandelli Cincinnati Milacron Aerospace. Its goal is to manufacture and sell in Europe (starting in 1993, naturally!) three- and five-axis one-spindle gantry-type milling machines for the aircraft industry. Before long, the consortium announced that it had received a large order from Alenia, the Italian aircraft manufacturer. A hard blow to Brisard, which manufactures similar machines.

Other unexpected competitors are emerging. In Albert, for instance, Henri Line, the "brain" who designed the famous Forest-Line machines, has created another company that bears his name: Henri Line Machine-tools manufactures the same gantry-type milling machines and heavy machining centers as the BMO plant located only 2 km away! Three years after his new start, Henri Line is boasting sales of Fr60 million and a backlog of orders worth Fr80 million. The two companies are at daggers drawn, and the rumor in Albert has it that moles have infiltrated BMO: Line is said to be informed about customers' requests, which would enable him to make counter-proposals. More seriously, we should note that this is no small danger for Brisard, as Henri Line possesses an acute sense of marketing in addition to his technical genius. He multiplies his initiatives: joint subsidiary with the Spanish manufacturer Dye; creation of a Line company in Canada; or, more recently, agreement with a manufacturer located in the former East Germany.

Finally—and above all—Brisard has an obvious staff problem. The best are leaving! Gilbert Carle was the architect of Colly-Bombled's recovery. He succeeded Etienne Brisard, the boss's own son, as chief executive officer. But he did not agree to have the Colly plant transferred to Autet, Brisard's preserve, and he chose to create his own bending-press and laser-cutting-machine business. Andre Greffioz, former head of research and development at the Capdenac plant, and one of the leading French specialists of high-speed machining, has also removed himself. After a short stay in Dampierre-sur-Salon, where Rene Brisard had made him head of the group's research department, he created a machine-tool consulting company. This does not mean that he has completely broken off with Brisard, whose services and research equipment he may use. Finally, Alain Marulier (20 years of experience), the group's key man, whom unions trust, is now involved full time in straightening out Sud Marine, the ship-overhauling company of La Ciotat that Rene Brisard acquired last summer. Rene Brisard is counting on his offspring: coming himself from a family of nine children, he has entrusted the

finances of his group to his daughter Nathalie, and his sons Jean-Claude and Etienne are in charge of marketing and technology. Like a few recent stars of the business world—Bernard Arnault with Boussac; Francois Pinault with La Chapelle-d'Arblay—he owes his nationwide fame to the very considerable help he received from the government. He must now prove that he can translate this support into industrial facts.

**The Three Poles of the Brisard Group (1991)**

Metal Structures, Industrial Fasteners: Leroux; Brisard Nogues (Chateaudun, Saint-Fargeau, Feytiat, and Nimes plants); CFOM; Larive; Metal Fismes; Revelin; Mischler Fasteners; Lyon Metal; CMA; Revelin.

Wood Machines: Lurem; Inca; Normac; Chambon; Bertrand Garcin; Vigneau; Socolest Matelest; Guilliet.

Machine-Tools: BMO Forest Line (Capdenac and Albert plants); BMO Bertiez (Saint-Etienne plant); Muller and Pesant; Colly-Bombled; Cosmo; Remiremont; Vernet; Copex; Omo; Pacific (United States); BMO Composites.

Note that in 1991 Brisard took over Sud-Marine, a company specialized in shipbuilding (of the 885 workers, 674 were retained).

**[Box, p 44]**

**The Brisard Group: A Broken-Up Empire**

It took Rene Brisard, now 59, 30 years to federate some 80 companies which, according to his public statements, represent total sales of over Fr3.5 billion for 1992, and about 5,000 employees.

It started with the family metal structure business that he and his nine brothers and sisters inherited in 1961. Taking over competitors in difficulties, he became the leader in his field in less than 15 years.

In 1984, he changed his course: He decided to tackle the technologically far more noble sector of the machine-tool by taking over one of his suppliers, Colly, a well-known maker of bending presses and other forming machines. The experiment nearly failed: In 1988, Colly was on the verge of bankruptcy. Gilbert Carle, formerly the manager of Bombled, which Colly had taken over, reorganized the group in 15 months.

In spite of this experience, Brisard's appetite for takeovers did not abate: In seven years, he acquired more than 10 machine-tool companies. The high point was reached in January 1988. Backed by his friend Christian Bergelin, (Haute-Saone deputy, chairman of the general council, and minister in the Chirac government), Brisard took over MFL. The machine-tool plan was then discontinued as a result of liberalism and diplomatic embarrassment: like the Japanese Toshiba, MFL had supplied five-axis machining centers to the Soviets—at the time still enemies of the West—to machine military submarine turbine blades.

In addition to metal structures and machine-tools, the Brisard group has created a third pole in the wood-machine sector where it also ranks first in France, especially through Guilliet, a company located in Auxerre (Yonne). Eager to diversify in all directions, lacking any obvious synergism or strategy, it also owns the Vetir store chain and, since August 1991, the Sud Marine ship-overhauling company.

## France: Alcatel Alsthom's 1991 Results Presented

*92WS0444N Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE in English 24 Feb 92 pp 20-21*

[Text] Alcatel Alsthom, the French telecommunications, energy and transportation group, announced consolidated sales of Fr159.9 billion in 1991, representing an 11 percent increase on 1990's consolidated sales of Fr144.1 billion. The company said that 7 percent of the sales growth came from "organic growth."

Orders booked in 1991 totaled Fr167.6 billion, Fr7.7 billion more than in 1990 when orders amounted to Fr156.7 billion. Orders were particularly high during the last three months of 1991, the company noted.

At the close of 1991, Alcatel Alsthom had a total of Fr140 billion of orders, up 14 percent from the end of December 1990.

**Breakdown of Sales by Product Sector (Fr Millions)**

| Sector | 1990 | % of total | 1991 | % of total | % chg 90/91 |
|---|---|---|---|---|---|
| Telecoms, business systems, cables* | 93,143 | 64 | 109,684 | 68 | +18 |
| Energy and transportation | 22,235 | 15 | 25,887 | 16 | +16 |
| Electrical engineering | 15,272 | 10 | 15,924 | 10 | +4 |
| Batteries | 5,360 | 4 | 3,482 | 2 | -35 |
| Miscellaneous activities | 10,431 | 7 | 6,925 | 4 | -34 |
| Sales between sectors | -2,388 | | -2,002 | | -16 |
| Total | 144,053 | 100 | 159,900 | 100 | +11 |

*In 1991, Network Systems represented 40 percent of this sector's sales; Cables 27 percent; Business Systems 13 percent; Radiocommunications, Space & Defence 11 percent; and Others 9 percent.

The group said it increased its market share in its major fields of activities, particularly in telecommunications and in power generation, mainly through both organic growth and acquisitions.

Provisional results of Ascom Holding Limited of Switzerland for 1991 show a 3 percent increase in sales from Sfr2,958 million in 1990 to SFr3,050 million in 1991. Orders received were virtually unchanged at SFr2,850 million.

**Breakdown of Consolidated Sales (Sfr Millions)**

| Division | 1991 | 1990 | % chg |
|---|---|---|---|
| Telecom Networks* | 850 | 737 | +15 |
| Personal & Business Comms | 800 | 875 | -8 |
| Radiocom | 400 | 383 | +4 |
| Service Automation | 515 | 590 | -13 |
| Ascom Sales & Services | 615 | 480 | +28 |

*The Telecom Networks division was reorganised as from 1 January 1992 and part of it has been transferred to the newly-created Enterprise Networks Division.

The 15 percent increase in the Telecom Networks Division was mainly attributed to the incorporation of Ascom Timeplex which became a wholly-owned subsidiary of Ascom at the end of September 1991 (see ITI Issue 311). Also consolidated for the first time was Ascom's sales and installation company for western Switzerland, Telephonie SA of Lausanne. The consolidation contributed to around half of the increase in sales of the Sales and Services Division.

Included in its list of international achievements for 1991 were orders for telephone exchanges and equipment for updating the existing telephone network in Botswana; the development and implementation of a corporate-wide communications network for the UK's Nationwide Building Society; ISDN-compatible terminals for the Netherlands and Denmark; various police radio networks and infrastructure for Switzerland's Natel C and D mobile telephone networks. Other successes included the founding of a joint venture in the Ukraine and 12 new Ascom projects within the framework of the European research programme RACE.

Last October, Ascom reached an agreement with Ericsson to set up a new company in the field of transmission equipment.

### French Aerospace Industry Faces Downward Turn

*92WS0447A Paris AFP SCIENCES in French 19 Mar 92 p 13*

[Unattributed article: "French Aerospace Industry's Sales Down"]

[Text] Paris—The aerospace industry's sales in constant francs will have decreased by one-fourth by 1994 (compared with 1990), Mr. Henri Martre, president of the French Aerospace Industries Group [GIFAS], indicated on 12 March.

Taking a longer-term view, however, Mr. Martre estimated that the unsettled world situation might lead to "a trend reversal in arms expenditures," which are now declining; this would improve the prospects of aerospace industries, which depend to a large extent on military budgets.

The decline in the industry's sales started already in 1991: 2.2 percent (in constant 1991 francs), down to 101,919 billion francs [Fr]. Equipment sales were the most affected (-6.1 percent). In the intermediate term, sales should decline by 4.5 percent in 1992, 9 percent in 1993, and 12 percent in 1994. According to the GIFAS, this is due to two factors: "the continued undervaluation of the dollar" and "cancellations of foreign military orders at the beginning of the year, due to the Gulf War, followed by cuts in French military orders."

In 1991, the civil share of the industry's activities amounted to 52 percent, 4 points above 1990; but, for the first time, this readjustment occurred at the expense of military sales, which decreased (6 percent by value, 9 percent by volume). In addition, exports amounted to Fr55.04 billion (a 4.3 percent decrease in constant francs), but deliveries dropped by 33 percent.

Backlogs of orders decreased by 30 percent (Fr93 billion, compared with Fr132 billion in 1990). Exports were hit hardest, with an estimated 34 percent drop. The current backlog of orders represents 1.96 years of work, compared with 2.16 on 31 December 1990. Nevertheless, the aerospace industry is the leading industrial item in the French balance of trade (just after the agrifood business), with a positive balance of Fr33.5 billion.

The number of people employed in the branch decreased by 2 percent in 1991. "The problem of unemployment," according to Mr. Martre, "will reach its full scope, and the social aspect of military programming will have to be taken into account."

## EAST-WEST RELATIONS

### Hungary: Communications Firm CEO on Attracting Foreign Investment

*92WS0393A Budapest COMPUTERWORLD/ SZAMITASTECHNIKA in Hungarian 4 Feb 92 pp 1, 7*

[Article by Zoltan Mikolas, based on an interview with Peter Vadasz: "Raising Capital at Microsystem; Digital Telecommunications Most Important"]

[Text] At a press conference with a large number of journalists, President Peter Vadasz reported that the Microsystem Company had increased its capital as a result of which four international banks or investment companies, known throughout the world, had joined the owners of the firm. The investors had subscribed to a total of 14,000 shares with a nominal value of 10,000 forints each at a price of 39,000 forints. Since they

brought in exclusively foreign partners the shares naturally changed hands for foreign exchange; thus all of the capital brought in comes to somewhat more than $7 million.

"Why is an investment of this size interesting when in the past year Hungary received direct investment exceeding $1.3 billion?" Mr. Vadasz asked. "I think that the transaction has a number of new and instructive aspects. The method of bringing in the capital is unusual, as are the international auditing and the procedure accompanying it, rendering the enterprise transparent, so also are the composition of the investors and the goal of the investment, which can be considered interesting too.

"Anyone who has watched the domestic privatization could have seen that either the firms go on the stock market, openly offering their shares for sale, or they come to an agreement with an investor in their speciality. In contrast to this we decided to seek partners outside our speciality. Why? Because we did not want to wake up someday to find that some foreign information technology firm was telling us what color necktie to wear to work. As for the stock market, it is certain that we do not intend to go onto it in the next six to eight months, especially since we have been talking only with foreign investors so probably the shares would turn over to only a minimal degree in Hungary."

It is apparent in other ways as well that the Hungarian owners wanted to preserve their freedom of choice above all. The five chief domestic stockholders insisted on maintaining more than 50 percent of the shares. For example, on the occasion of the present increase in capital a buyer could not get a share worth more than $1 million, they would have halted sales first. "We are still thinking about this," the president of the firm said. "Everyday practice will show if a 51 percent majority is really needed to control the firm. In any case we have reservations regarding the textbook assertion according to which one can control things even with 30 percent, if the other partners have only small ownership ratios."

**A Hard Test**

"So, after the fact, we are of course very proud of the results, but looking back over the bitter work of the past 14 months—preparing and implementing the increase in capital took this long—I can only call this masochistic, the decision to seek western investors outside our speciality," Mr. Vadasz mused. "We had to submit ourselves to strict international auditing. We felt that we could entrust this task, so vital for Microsystem, only to a professional. Out of five well known auditing firms we chose Arthur Andersen, and as investment consultant we chose the largest stockmarket firm in the world, Salomon Brothers."

Thereafter a hard test awaited both owners and employees of Microsystem. Only eight of the some 240 workers of the firm are in the economic division. Their "enemies" were seven auditors, six of whom did not even know Hungarian. From morning until late in the evening the strict guests studied the documents and examined the finances of the enterprise going back three years. "Subsequently they confessed to us that for three out of four Hungarian firms they would have done all the bookkeeping over again. This did not happen with us, although after the auditing one would not have recognized the balances for the preceding years," we heard from the president. "As people say, the numbers checked but the pluses and minuses did not. But joking aside, we could have been wounded by this auditing, making everything transparent."

But much is won by those who can stand it. The judgment, the confidential report for the investors, was prepared on the basis of international norms. Salomon Brothers had prepared a thick dossier of due diligence on Microsystem by November of last year, probably making it a matter of prestige to win well known partners. This succeeded despite the fact that the West was getting alarming news about Hungarian stock market practices. "It increased confidence in our firm that we are not an undertaking based on one man's leadership," commented Mr. Vadasz on the result.

Finally, the following financial institutions and enterprises invested in the Hungarian firm:

—The European Bank for Reconstruction and Development (EBRD), London, with 15 percent;

—The Hungarian-American Enterprise Fund, Washington, with 13 percent;

—Invesco MIM East Europe Development Fund Ltd., London, with 6 percent; and

—Salomon Brothers International Ltd., London, itself, with 3 percent.

The agreement is given special significance by the fact that this is the first Central European investment by the EBRD. Up to now the bank has signed only two contracts, for loans, in Hungary. One of these, 185 million marks credit for Matav [Hungarian Telecommunications Enterprise]—offered with a state guarantee—was announced, obviously not by chance, on the same day as the investment in Microsystem—a medium size firm making half its living from telecommunications.

**Digital Telecommunications and Quality Computer Engineering**

So now we come to the question of what the firm wants to spend the incoming funds on. Microsystem—as the

president announced—regards telecommunications as its most important activity area in the future. The leaders want to raise the telecommunications business, 700 to 800 million forints last year, into the billion forint range. They want to be among the organizers of the local telephone networks—with great strength—and they want to be among those making bids on digital pagers and cellular telephones. (With what foreign partners is still a business secret.) Of course the present capital increase will not produce the sum, several tens of millions of dollars, needed to build such systems.

"We will turn the money of our investors partly to freeing ourselves of the bank loan which represents a very great burden in today's Hungary," Mr. Vadasz noted. "The successful computer engineering firms here have developed by being able to realize 100 percent profits in the early 1980s, which they then reinvested in the business. Of course, according to the laws of the market economy which has developed in the meantime, everyone tried to get into the area where the profits were so high. So as a result of the sharp competition the profit key today has fallen by an order of magnitude. So there is a need for outside sources to finance larger firms. Last year we had a turnover greater than 3 billion forints, with 300 million in loans behind it, and a bank loan of 130 million forints as well. It is obvious how much the profit of the enterprise will be increased by getting free of the bank loan all by itself."

Putting the telecommunications profile in the foreground had no small role in bringing the money of the investors into Microsystem. The large world computer engineering firms have been forced to post losses and dismiss many thousands of employees. The Hungarians argued in vain that our country is behind the world by 15 years in this area, so the indisputably large possibilities in telecommunications aroused much greater confidence. To quote Mr. Vadasz: "In a country where there are 11 telephones per 100 inhabitants it appears that telecommunications is good business. According to the plans the number of lines per 100 inhabitants will increase to 17 within two years, and the state will contribute 180 billion forints to the development."

Of course, Microsystem will continue to have a computer engineering profile as well. Sale of mediocre computers will fall to a minimum; they will concentrate on Data General minis and workstations and on Compaq and AST and ALR PCs. (Speaking of hardware, the president seized the opportunity offered by the press conference to call attention to the contradiction between the nice COCOM principles and reality. "We have prestige customers for the Data General machines. But what you read about the simplification of COCOM is, for the time being, humbug in practice. For example, we have not been able to ship to the State Competition Office for four months because we did not get the export permit.)

The firm is strengthening its software line. They have won exclusive distributor rights and have already acquired about 20 users for the accounting package called Europa 3000, used on our continent in more than 10,000 places. According to the evaluation by the European Community this program was best in its category, with 52 points; the second place winner had only 27 points! A few months ago a great stir was caused by the formation of the 3Soft joint venture (Controll-Microsystem-Muszertechnika); as a first step it is selling network programs but later it will undertake distribution of other software as well.

**Those Who Do Not Grow Will Fall by the Wayside**

What is the longer term strategy of Microsystem? According to Mr. Vadasz: "Our firm has been different from the others even before this. It was distinguished by its leadership structure and especially by the fact that we did not make grandiose manufacturing plans, nor did we stick to simple trade. In the future too we will place the emphasis on the activity which, I believe, was always our strength—value adding.

"Today a firm is not made international by the fact that it sells for foreign exchange. We sell for foreign exchange here at home too, not to speak of Czech-Slovakia and the former Soviet Union. In an age of an almost convertible forint (and hopefully it will soon be completely convertible) the measure of internationality is what we have now achieved—a transparency and size according to western norms, that the enterprise has been found worthy of investment by foreign capital.

"Many small computer engineering firms went bankrupt last year, and we can count on this, this year as well. Although we have already grown out of the 'basement firms' stage (and they could put a lot of pepper under the noses of the big ones in any case) we know that we can stay on our feet only if we constantly go forward. It is not enough to maintain the same level year after year, as in, let us say, the catering industry. He who does not grow in our branch of industry will sooner or later fall by the wayside. Well, it appears—on the basis of the present capital increase among other things—that you will have to reckon with Microsystem, as an outstanding player on the domestic computer and telecommunications market, for the next 10 years."

## Alcatel, Datim Form Franco-Romanian Joint Venture in Timisoara

*92S0430 Bucharest ROMANIA LIBERA in Romanian 21 Mar 92 p 2*

[Article by Ion Medola: "Alcatel in Timisoara"]

[Text] Last year, a new company name—Alcatel Network Systems Romania—appeared above the building of the former memory manufacturer known as Datim. This is a new landmark in the city's and the country's industrial landscape, representing a joint Romanian-French company, the largest deal closed after the revolution in the country's western region. The major partners in this

prestigious firm which aims to revolutionize telecommunications—and more—in our country, are the well-known French firm Alcatel CIT-France, which holds 55 percent of the capital, Datim Timisoara with 36 percent, and Romtelecom with 6.6 percent. Who is Alcatel? It is a company renowned in Europe, and in fact throughout the world, with 55 production units and branches in Great Britain, Sweden, Germany, Italy, Belgium, the United States, Spain, Switzerland, Austria, Holland, Denmark, and so on; it specializes in various advanced technology branches, such as telecommunications (ultra-sophisticated telephone systems, including satellite communications), nuclear power plants, high-speed trains, and so on; and its revenues surpass $17 billion per year. With a modest—but far from anonymous—calling card, the Timisoara unit has produced computer memories for more than two decades, as well as microcomputers and software, all of it with less than 400 employees; which is why the French partner selected Timisoara from among the three Romanian bids.

Why Alcatel and not another firm? That is what we asked Vasile Baltac and Virgil Popescu, engineers and secretaries of state at the Ministry of Industry and the Ministry of Communications, respectively. Their answer was swift and categoric: "This is a most fortunate and advantageous arrangement for our country, not only with regard to the company's competitiveness, but from all points of view."

After this brief preface, we will try to provide some details about this joint company, the first one created outside France, specialized in the fabrication of digital telephone systems. In the words of Dr. Dan Bedros, general director of the company, the Timisoara collective is honored to have been selected, but at the same time, it must keep pace with the latest advances in the field, and even surpass Siemens, its major competitor. It is certain however, that although not even three months have passed since its opening, the company has undertaken with all its strength to satisfy its French partners, who according to their own statements were surprised to see that had not been aware of the true potential of the Romanian specialists. Work is already proceeding in several directions, including the first telephone system that will be placed in operation in Timisoara as early as this summer. It should be pointed out that this digital telephone system plant represents the fruits of at least five years of assiduous research based on state-of-the-art technologies developed to meet the needs of 1991. In fact, Alcatel will have three separate departments: (1) an automated manufacturing of telephone systems, which will use a test equipment network permanently connected to a database in Paris; (2) a software research activity which will include the participation of Romanian specialists; (3) an international service which will install this type of systems in more than 30 countries.

The joint company is starting out with a capital of nearly $7 million, to which $25 million more will be added during the next three years. Its production will grow at an even more spectacular rate: from 70,000 world-class telephone systems in its first year of activity, to 400,000 systems which will include a full set of modules necessary for any telephone system independently of its capacity. What is more, this production level will be obtained with only 400 employees. It is true that they will all be hand-picked specialists who will be strongly supported by perfectly integrated technical operations, an automated assembly line, a 32-bit central processor, and a string of robotic equipment. The great opportunity for our specialists is that they will acquire not only new experience (Alcatel invests approximately 2 billion francs per year in research), but new practices as well, by coming into direct contact with the main computer in Paris (IBM-2000), to which are connected about 1000 terminals from throughout the world.

We don't know exactly when our country will have six to seven telephones per 10 inhabitants, which is the European average, but we know that according to statistics, there currently is one telephone per 10 inhabitants. We have also learned that Alcatel has drawn an ambitious plan of installing no less than 100,000 world-class telephone lines per year in Romania, and that a study is already underway to develop a National Telecommunications Network by the year 2000, aimed at urban, rural, and even satellites facilities. We also note with satisfaction that Timisoara is beginning to achieve a good reputation in telecommunications: the company will establish a strong development and research center here, intended to help improve its product line; and during this year, Romanian, along with Alcatel specialists will install more than one million telephone lines in tens of countries. We are thus witnessing a spectacular start, without the transition and familiarization period of older traditions.

## EUROPE-ASIA RELATIONS

### Chinese Computer Scientist Who Participated in ESPRIT Project Develops AI System

*926P0180Z Beijing JISUANJI SHIJIE [CHINA COMPUTERWORLD] in Chinese No 10, 11 Mar 92 p 1*

[Article by Xin Zi [2946 1311]: "China Develops High-Efficiency Tool for Structurally Large Knowledge Bases"]

[Text] In a six-year effort, 40-year-old post-doctoral researcher Li Lei [2621 4320] has succeeded in developing a PROLOG database management system (DBMS) knowledge processing system—a world-class achievement formally certified by the State Education Commission on 19 January in Guangzhou. The PROLOG-language DBMS knowledge processing system is a key tool for logical inference design in the structurally large knowledge bases of fifth-generation computers, a subject of great interest and competitiveness among the United States, the EC, and Japan. In 1985, while studying for his Ph.D. at Lyon University I under noted scholar J. Kouloumdjian, Dr. Li participated in the EC

ESPRIT program's study of knowledge-based system design, with the goal being a new system integrating databases and logical program design technology. One of his accomplishments was a semi-compiled technique for a PROLOG DBMS. In 1988, he returned to China and under various post-doctoral grants continued his studies in advanced computing—especially on the topic of integrating difference optimization methods, semi-interpreting techniques, and special-purpose parallel communications interface technology.

In the computer room of the Computer Department at Zhong Shan (Sun Yat-Sen) University's Lingnan Institute, Dr. Li gave this writer a demonstration of his PROLOG DBMS knowledge processing system, which runs on a Sun workstation under the UNIX operating system environment. It is implemented specifically in Quintus PROLOG, with the Ingres relational database. According to Dr. Li, the system uses a dynamic connection technique, with a DBMS question-answering technique based on grouping of DB predicates—a completely automatic intelligent question-answering compound technique. Essentially, a step-by-step result is obtained by assembling relevant data at each step and eliminating superfluous data at each step; this technique is built into the control strategy of the system. After the demonstration, Dr. Li indicated that he hopes his system will be commercialized as quickly as possible, and put on the international market.

## European Space Agency To Develop Space Planes With Japan

*92WS0386C Paris LE MONDE in French 27 Feb 92 p 13*

[Article by Ph. P.: "Space: Initial Talks on Cooperation Between Europe and Japan"]

[Text] Tokyo—The Japanese Science and Technology Agency appears prepared to sign an agreement with the ESA [European Space Agency] to jointly develop space shuttles. The Europeans and Japanese also contemplate cooperating in the training of the astronauts who will be using the Freedom space station, the prime contractor for which is American.

In an article on 25 February, the Japanese daily ASAHI reports that a tentative decision has been reached. The Science and Technology Agency, however, is a great deal more guarded on the subject. Meetings on this topic have been held recently with Mr. Erich Riedl, parliamentary secretary of state in the German Ministry of Economy, but a meeting of experts will have to be held before a preliminary agreement can be signed.

ESA Director General Jean-Marie Luton's arrival in Tokyo around the beginning of March is expected to clarify the possibilities of a joint undertaking such as this. The undertaking in point would involve Japan's Hope and Europe's Hermes space shuttles. The cost of separate development of the two spacecraft—the equivalent of 1,000 billion yen for Hermes and of 400 billion for Hope—renders their development by the two parties respectively problematic.

The Hermes program has a three-year lead over Hope, and the Japanese would like to take advantage of the experience already gained under the European project. They are, for their part, developing an unmanned space shuttle 12 meters long, weighing 20 metric tons, and they recently succeeded in fabricating a mock-up for the study of this shuttle. But while a limited cooperation can be undertaken by the two parties, the two programs differ so widely from each other that a joint development of both space shuttle projects seems impossible today.

## ESA, Japan To Increase Collaboration

*92WS0424C Paris AFP SCIENCES in French 12 Mar 92 p 7*

[Article entitled: "ESA and Japan Want More Collaboration"]

[Text] Paris—Europe and Japan reaffirmed their desire to continue collaborating on various space projects at a meeting of two officials on 11 March in Tokyo, the European Space Agency (ESA) announced. The meeting brought together the general director of the Japanese Science and Technology Agency and president of Japan's space commission, Mr. Kanzo Tanigawa, and Mr. Jean-Marie Luton, the general director of the ESA.

The interview with Mr. Tanigawa was a highlight of Mr. Luton's four-day trip to Japan. During the interview, the two parties noted that their collaboration on NASA's international Freedom space station program had proved highly useful and deserved to be pursued and expanded. Japan and the ESA have worked together on Earth observation, control of orbiting satellites, and information exchanges for Freedom.

Mr. Luton proposed, for instance, that Japan and the ESA step up their research collaboration on observation of the Earth and its environment, data-relay satellites, and the future Japanese and European space planes, Hope and Hermes. He also suggested closer collaboration in preparing space flights to the Freedom station, and reciprocal use of the Japanese (JEM) and European (APM) modules that are docked there.

The Japanese and Europeans might also collaborate on advanced, multiregional communications systems, and on future-generation weather satellites in geostationary orbit. Experts will study the different possibilities before the next meeting between the ESA and Japan, which is scheduled for next June in Europe. Mr. Tanigawa stressed the need to promote international cooperation to ensure the peaceful use of space during this year's International Space Year. Mr. Luton noted that that is exactly the ESA's approach for the next century.

## Nokia Enters Japanese Mobile Phone Market

*92WS0444K Chichester INTERNATIONAL TELECOMMUNICATIONS INTELLIGENCE in English 10 Feb 92 p 15*

[Article: "Nokia Enters Into Japanese Cellular Phone Market"]

[Text] Finland's Nokia Mobile Phones has made a breakthrough into the Japanese cellular telephone market with the conclusion of a cooperation agreement with Nippon Idou Taushin (IDO) for the design of a digital cellular phone for the Japanese market.

Jorma Ollila, president of Nokia, said Nokia was selected against "strong Japanese competition" demonstrating the strength of its position in the digital mobile phone marketplace. Nokia says it is the only European manufacturer to gain access to the Japanese cellular phone market.

According to Nokia, IDO plans to launch the terminals in Japan in 1993, in conjunction with the introduction of its digital mobile phone service. IDO operates cellular networks in Tokyo and Nagoya, and claims to have a 25 percent share of the Japanese mobile phone market.

To enhance the business partnership, a Cellular Mobile Telephone unit has been established at Nokia's Japanese subsidiary.

According to Nokia, the Japanese mobile phone market is in a period of "explosive growth." Currently, there are 1.2 million mobile phone users in Japan. However, the density of mobile phones is still low, at only 1 percent, compared with 5 percent in the Nordic countries. In 1991, the growth rate was 70 percent and this trend is likely to continue, says Nokia, forecasting the number of mobile phone users to increase to between 12 and 15 million by the end of the decade.

In addition, Nokia says that over 80 percent of mobile phone users in Japan specifically want a handheld or a pocket phone rather than a car phone.